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ABSTRACT

The link between student charges, enrollment, financial aid needs, and institutional revenues at California community colleges, the University of California, and the California State University is examined. After reviewing the public and individual costs and benefits of higher education, attention is directed to current institutional charges for resident and nonresident students and trends in present and past charges in both current and constant dollars. The following bases commonly used by states in determining appropriate levels of student charges are considered: (1) a predetermined percentage of the cost of instruction in different types of institutions, (2) the instructional level of students, (3) a comparison with charges at other institutions, (4) the distinction between credit and noncredit courses or between regular and extension offerings, (5) differences in the future earning potential of students with different majors, and (6) anticipated budget shortfalls. The impact of student charges on the demand for higher education is also addressed, along with the components of a student change model, and projected changes in charges based on the model. Comparative data on student charges for institutions in California and other states are included, along with an extensive bibliography. (SW)

THE PRICE OF ADMISSION, 1983

An Assessment of the Impact of Student Charges on Enrollments, Student Financial Aid Needs, and Revenues in California Public Higher Education

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

1020 Twelfth Street, Sacramento, California 95814

Commission Report 82-39

December 1982

The California Postsecondary Education Commission was created by the Legislature and the Governor in 1974 as the successor to the California Coordinating Council for Higher Education in order to coordinate and plan for education in California beyond high school. As a state agency, the Commission is responsible for assuring that the State's resources for postsecondary education are utilized effectively and efficiently; for promoting diversity, innovation, and responsiveness to the needs of students and society; and for advising the Legislature and the Governor on statewide educational policy and funding.

The Commission consists of 15 members. Nine represent the general public, with three each appointed by the Speaker of the Assembly, the Senate Rules Committee, and the Governor. The other six represent the major educational systems of the State.

The Commission holds regular public meetings throughout the year at which it takes action on staff studies and adopts positions on legislative proposals affecting postsecondary education. Further information about the Commission, its meetings, its staff, and its other publications may be obtained from the Commission offices at 1020 Twelfth Street, Sacramento, California 98514; telephone (916) 445-7933.

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PREFACE

The legislation creating the California Postsecondary Education Commission charged the Commission as part of its ongoing planning efforts to examine "the impact of various types and levels of student charges on students and on postsecondary educational programs and institutions" (Education Code Section 66903[2]). To fulfill this obligation and provide a thorough and objective analysis of the complex and controversial issue of raising student charges in light of the financial constraints facing California public higher education in the 1980s, the Commission issued a draft of the first edition of this report in September 1979. That draft described the preliminary version of a simulation model developed by Commission staff that could be used to estimate the likely impact on enrollment and implications for revenue of various increases in undergraduate student charges at the public colleges and universities in California.

The draft report and the preliminary model were subjected to an intensive four-month review by interested student organizations, staff members of the central offices of the three public segments of higher education and of the Association of Independent California Colleges and Universities, the director of the economic research division of the Education Commission of the States, and economists at the Brookings Institution in Washington, D.C. They suggested a variety of revisions during this review, and the Commission staff incorporated a number of them into the final version of the report which the Commission adopted in February 1980 as The Price of Admission: An Assessment of the Impact of Student Charges on Enrollments and Revenues in California Public Higher Education (Commission Report 80-2).

The 1980 report was not written in anticipation of Proposition 9, a June 1980 ballot initiative that would have cut the State's personal income-tax rates by 50 percent had it passed. As a result, few of the possible fee increases it discussed were of the magnitude considered in the contingency budget planning that Proposition 9 set in motion among State and institutional officials. Therefore, in consultation with staff members from the three public segments, the Department of Finance, and the Office of the Legislative Analyst, Commission staff added additional elements to the simulation model for projecting graduate and professional student enrollment losses as well as undergraduate enrollment losses and for projecting additional student financial aid needs based on these possible fee increases. The revised model--dubbed "Version 1"--was computerized and by late Spring 1980 was made accessible to all interested

parties in the State budget planning process through the program library of the Teale Data Center. At the same time, a State-level users group was created to provide a regular ongoing forum for updating the model and considering possible changes or refinements to it. In September of that year, the Commission issued a new introduction to The Price of Admission explaining the major components of the model and the assumptions underlying its estimation procedures.

Since 1980, nearly 1,500 copies of The Price of Admission have been sent on request to interested Californians, higher education officials in other states, and their counterparts in several Canadian provinces. Meanwhile, the student charges model has been refined and updated three more times so that it can continue to serve as an analytical planning tool for California educators and State policy makers in evaluating various fee and financial aid proposals as part of the annual budget process. Descriptions of the new versions of the model have been circulated widely, but by 1982 the bulk of information in the original report was becoming outdated. That spring, as part of the Commission's response to Assembly Concurrent Resolution 81, the staff updated Chapters Two, Three, and Four of the report as Background Papers on Student Charges, Student Financial Aid, and Access to Postsecondary Education which the Commission distributed in April.

Continued interest in the issue of student charges in California and elsewhere and the growing desire of State policy makers to be able to assess the link between student charges, enrollment, financial aid needs, and institutional revenues suggested the need to revise and reissue the full report. The present document is the result. Like its 1980 predecessor, The Price of Admission, 1982, is designed to provide Commissioners, legislators, and other interested parties with a comprehensive picture of the policy issues surrounding student charges. It is based on the belief that a broad view of these issues is essential for thoughtful and balanced decisions in setting and adjusting fees. Because it attempts to promote understanding rather than a particular point of view, it neither offers nor constitutes policy recommendations of the Commission.

Chapter One reviews what is known about the public and private costs and benefits of higher education. Chapter Two explains who has authority to set student fees in California's public postsecondary institutions, what these institutions currently charge, and how these present charges relate to past trends in both current and constant dollars. Chapter Three describes six different ways of setting student charges. Chapter Four presents evidence about the impact of student charges and other variables on the demand for higher education. Chapter Five lists the components of Version 4

of the Commission's student charges model. Chapter Six illustrates projections that may be obtained from use of the model in calculating the effects of changes in these charges. And Chapter Seven provides a summary of the main findings from previous chapters.

CHAPTER ONE

COSTS AND BENEFITS OF PUBLIC HIGHER EDUCATION

The value of education to both the individual and society has long been accepted as a basic article of faith by most Californians. A desire to make higher education democratically accessible and a recognition of society's need for trained and educated citizens underlay the passage of the Morrill Land Grant Act by Congress in 1862 and California's decision six years later to establish the University of California as its land-grant institution. From modest beginnings a century ago, the University has developed into a world-renowned nine-campus system with 134,099 students in 1981. The California State University traces its origin back to the creation of San Francisco's normal school in 1862 and now is an impressive 19-campus system educating 319,566 students. The idea of public junior colleges did not originate in California, but the modern community college with its vast array of course offerings for diverse constituents first developed here. California's current 106 Community Colleges provide a wide range of educational opportunities to more than 1.4 million people.

Considered as a whole, California's three-tiered system of public higher education represents a singular social and cultural achievement. It has become the most widely respected and imitated model for public higher education in the nation. The magnitude of this educational enterprise and its funding have led to periodic debates about its benefits and costs, and about the equitable distribution of costs among those who benefit. In recent years, attention has often centered on economic and financial considerations because these dimensions are most susceptible to measurement and most directly linked to State budget deliberations. Moreover, the rising costs of public higher education to both the individual and the State, the competing claims on increasingly limited tax resources, and the State's own revenue outlook have prompted students, taxpayers, and their representatives to demand evidence that they are getting their money's worth. Not all the benefits higher education provides to the individual or society can be measured, of course; and those that can be quantified are not necessarily the most important. Nevertheless, the question of public and private costs and benefits deserves further examination, and most of the costs and benefits can be described, even though they cannot all be measured.

PUBLIC BENEFITS OF HIGHER EDUCATION

Higher education benefits California as a State in at least four ways: economically, socially, politically, and culturally. Clearly, these are interdependent rather than mutually exclusive categories. Yet, by examining the influence of education on each area separately, its overall importance can be more readily understood.

Economic Benefits

In the nineteenth century, California was still predominantly rural and agricultural, containing relatively few wealthy families and far fewer members of the urban middle class than today. Higher education in general and public higher education in particular provided an opportunity for further education to the relatively small number of sons and daughters of farmers, shopkeepers, and artisans who completed secondary school. Most state residents felt that a system of low-cost, public higher education would contribute to California's economic growth and development by "providing a supply of educated young people who would become the doctors, lawyers, teachers, and business leaders needed in a developing society" (Carnegie Commission, 1973, p. 100). Later, as urbanization and industrialization proceeded, the need to train sufficient numbers of engineers, scientists, and technicians also became evident. Again the University, the State University, and a number of independent institutions assumed a central role in providing that training.

The literature on economic development confirms what these early Californians and their heirs understood intuitively--the increase in human capital is a critical ingredient in determining the pace and character of economic development in an area. Education, of course, is the major source of human capital, and the investment in higher education affects human capital formation and economic development through both instruction and research. First, higher education is organized to discover, and cultivate human talent. Second, through their extensive involvement in both pure and applied research, California's universities make major contributions to the advancement of knowledge. (Coordinating Council, 1965, p. 12).

Today California's economy is more highly developed and technologically sophisticated than that of any other state in the nation. The reason so many aerospace, electronics, computer, research and development, and other high-technology firms were founded or chose to locate in California, as well as the reason the State continues to have such potential for vigorous economic growth, can be traced

in large part to the commanding presence of its large number of colleges and universities and to the rich endowment of human resources these institutions have helped create.

Societal Benefits

For decades, higher education has been a major contributor to socio-economic advance and an integral part of the American dream of success. Participation in higher education has enabled people to rise socially, occupationally, and financially. While this mobility is properly counted among its benefits to individuals, access to higher education also provides important social benefits. If social classes become rigid and the opportunities for social mobility are denied, society stagnates and social conflict tends to escalate. Thus access to higher education contributes to and safeguards the continuing vitality of an open society by encouraging and rewarding excellence, aspiration, and intellectual achievement. (American Association of State Colleges and Universities [AASCU] 1976, p. 2; Coordinating Council, 1965, p. 11; Freeman, 1976a, p. 1).

Higher education provides other benefits to society. A substantial body of research shows that there is greater individual and social stability among the college educated, including lower rates of family instability, poverty, unemployment, and crime, and far less dependence on costly government services. Tax revenues increase as a result of the higher lifetime earnings of college graduates; participation in civic affairs and charitable organizations rises; and the ability of citizens to communicate effectively through the various media grows--a condition necessary for the operation of a complex market economy and for the maintenance of a political democracy. (AASCU, 1976, p. 2; Bowen 1980; Coordinating Council, 1969, pp. 8, 9; Hyman, Wright, and Reed, 1975).

Political Benefits

A democracy demands of its citizens an awareness of the problems that confront their society. Our political institutions are grounded in the belief that the electorate is concerned and intelligent enough to make reasonable, informed decisions on matters of public importance. Yet, as the problems confronting society and the issues facing public officials become more and more complex, the need increases for more highly educated public servants. Our colleges and universities provide the training, research, and expertise upon which modern government decision making increasingly depends. They also play a significant role in educating those who hold positions of public trust.

Cultural Benefits

Another public benefit of higher education is the more effective preservation and extension of our cultural heritage that it makes possible. By helping to perserve and transmit knowledge of the literary, artistic, and cultural treasures of the past, higher education enriches our esthetic appreciation and understanding. Furthermore, as the Coordinating Council has noted:

> The convergence of all types of artists, writers, musicians, performers and critics upon higher education provides opportunities for [the] interchange of ideas and for [the] consequent instructional enrichment of each fine art form. Higher education increases both the number of amateur and professional performing artists and the number of people who patronize them. . . . (1965, p. 12).

INDIVIDUAL BENEFITS OF HIGHER EDUCATION

The most obvious benefit to individuals that higher education provides is access to high-paying, high-status jobs. As the old saying goes, "to get a good job, get a good education." Over the years, the character of work has changed, placing increasingly complex demands on workers. In 1890, when most Americans lived in rural areas and worked in agriculture, a good education usually consisted of completing elementary school: Only four out of every hundred young people between the ages of 14 and 17 were enrolled in high school that year, and only two out of every hundred between 15 and 19 attended college. Today, more than 85 percent of the country's 14- to 17-year-olds are enrolled in high school, but the possession of a high school diploma is no longer the passport to a good job. Now almost all the premium jobs are secured by college graduates.

Increased Income

It used to be fashionable among human-capital theorists to calculate the dollar value of a high school diploma or college degree over the average graduate's life. Of course, some of the resulting income differential could be attributed to inherent differences in individual ability between high school and college graduates, but after allowing for this factor, the Coordinating Council for Higher Education estimated as late as 1969 that, on average, a college degree was worth more than $100,000 in additional earnings over the course of the college graduate's lifetime (Sanders and Palmer, 1965, pp. 90, 91, Coordinating Council, 1969, p. 35).

The old saying linking a good job to a good education has taken on new meaning since the 1970s. As Kenneth Deitch observed (1978a, p. 35):

> On the one hand, the absence of a college degree is, probably more than ever before, a barrier to obtaining one of society's "good" jobs. On the other hand, the job market for college graduates is less favorable than it once was. College graduates are more plentiful, relative to the demand for them, than they were before the late 1960s and the earnings of college graduates now exceed the earnings of non-graduates by relatively less than they once did.

Richard Freeman did more than anyone else to advance this idea in two of his books, The Declining Economic Value of Higher Education and the American Social System (1976a) and The Overeducated American (1976b). He pointed out that after a century of vigorous expansion, the "professional/managerial" share of the work force leveled off in the 1970s, although the number of college graduates continued to increase. As a result, he argued, a "large number of graduates who entered the market in the 1970s were forced into jobs outside the professional and managerial areas," and "many graduates reported that they were employed in positions outside their fields of study." The decline in employment opportunities for college graduates led to lower average incomes and a smaller earnings differential between college graduates and non-graduates. According to Freeman, the average salary of college graduates had been 53 percent more than that of high school graduates in 1968 but fell to just 35 percent more in 1973. From this he concluded that the proportion of high school graduates likely to enroll in college would decline because for many young people "an investment in college will not be worthwhile." (1976a, pp. 4, 5, 7, 8; 1976b, p. 184).

Freeman's conclusion was publicized widely, but it was flawed in several important ways:

- While Freeman used data on the starting salaries of recent college graduates for his calculations, he failed to obtain data on the earnings of recent high school graduates. Instead he used the average earnings of all full-time (including experienced) workers as a substitute for the starting salaries of recent high school graduates, and this most likely overstated the upward trend in their earnings.

- Secondly, while the job market for college graduates continues to be soft in a number of fields, especially during the current recession, the average earnings of college graduates historically have shown a more rapid and greater progression during their

working lifetime than do those of high school graduates. This pattern is quite likely to continue and the initial earnings differential which already favors college graduates will continue to widen progressively with age.

- Third, the current recession further confirms Leonard A. Lecht's 1977 observation that the prospect of workers being unemployed decreases as their level of education increases. Freeman did not adequately take into account the large and widening gap in unemployment rate between high school and college graduates. This rate for high school graduates under 25 years old rose from about 6 percent in 1967 to between 14 and 16 percent in 1975-76, compared to a rise for college graduates from about 2 percent to about 6 percent. Furthermore, while the unemployment rate for college graduates probably has not increased appreciably over the mid-70s level, the rate for both high school graduates and dropouts has become grim indeed, especially for those in the construction trades and in industries producing heavy durable goods such as automobiles. Lecht further suggests that college graduates may be exposed to fewer occupational accidents and illnesses, and be recipients of more generous fringe benefits.

In short, while it is clear that a 7.5 percent return on the investment in a college education in the early-1970s was lower than the 11 to 13 percent return of the 1960s, the available evidence still suggests that for most graduates it remains a sound investment in strictly financial terms.

Mobility Opportunities

Furthermore, although Freeman chose not to emphasize the point, he recognized, as have Kenneth Deitch and others, that the narrowed income differential contains a cruel irony for many high school graduates and others who choose not to enroll in higher education.

He observed (1976a, p. 13):

> . . . with a relative surplus of college graduates, opportunities for nongraduates to attain white-collar positions appear to be diminishing. Between 1969 and 1974, college-trained personnel became increasingly important in several major occupations where high school workers had traditionally predominated: sales and managerial work for men, and sales and clerical jobs for women. Estimates of the possibilities of replacing high school workers with college workers as the availability of the latter increases and their wages decrease suggest that this pattern will continue into the future. This is

> not to say that alternatives to the college route to white collar jobs do not exist, but merely that the surplus of graduates is likely to make it more difficult for nongraduates, to compete for those jobs than in the past.

At the same time, the economy now appears to be undergoing major structural changes that will diminish sharply the employment opportunities for blue-collar workers in heavy durable goods industries. Economic recovery may ease the serious unemployment problems in the construction industry, but it is not likely to provide as many jobs in auto, steel, and other heavy industrial operations.

Additional Benefits

To focus primarily on the greater income to be derived from a college education or on the rate of return from investing in education is to ignore other individual benefits that accrue directly to the participants in higher education. These include personal enrichment, hedging against changes in technology that render certain occupational skills obsolete, and options regarding life style and employment that are not as frequently available to the person with less education. In 1976--a relatively good year for the economy--40 percent of school dropouts and high school graduates under age 25 were unemployed, compared to 7 percent of the college graduates. While comparable figures are not available for the current year, this difference has, if anything, probably widened. In addition to greater job security, higher income, and often a more satisfying job, the college graduate is also likely to enjoy "greater effectiveness as a consumer, greater ability in allocating time as well as money, direct enjoyment of the educational process and its related activities, and lifetime enhancement of cultural and other experiences" (Carnegie Commission, 1973, pp. 2, 3). Although many of these seemingly intangible individual benefits cannot be measured precisely, they are nonetheless important.

PUBLIC COSTS OF HIGHER EDUCATION

State Appropriations and Local Property Taxes

In the 1970-71 fiscal year, the California Legislature appropriated approximately $839 million in State General Fund support for public higher education, including $337 million for current operations of the University of California, $305 million for the then California State University and Colleges, and $196 million for the Community Colleges (Table 1, below). In addition to this State support, the Community Colleges received nearly $283 million in local property tax revenues. Since that time the State's system of public higher

education has expanded greatly, the number of students has increased significantly, and budgets have grown correspondingly.

For example, by 1981-82, the total State appropriations of General Funds for current operations of public higher education totaled $3.165 billion, of which the University received $1.099 billion, the State University $970 million, and the Community Colleges $1.079 billion. With local property tax revenues included, the Community College total mounted to $1.489 billion.

Appropriations As a Proportion of State Expenditures

These figures can be seen in proper perspective when compared to total State expenditures and property tax revenues. Thus while State General Fund appropriations for current operations of public higher education increased from $839 million in 1970-71 to $3.165 billion in 1981-82, the total State budget increased from $4.853 billion to $21.7 billion in the same period (Column 1, Table 1).

TABLE 1 State Appropriations to the Three Segments of Public Postsecondary Education for Current Operations in Millions of Dollars and as a Percentage of Total State Appropriations, 1970-71 to 1981-82

Budget Year	Total State Appropriations	University of California Current Operations		California State University Current Operations		California Community Colleges Current Operations			
		Current State Appropriations	Percent of State Appropriations	Current State Appropriations	Percent of State Appropriations	Current State Appropriations	Percent of State Appropriations	Total Community Colleges Budget	State Appropriations as Percent of Budget
1970-71	$ 4,853.9	$ 337.1	6.9%	$ 305.1	6.3%	$ 196	4.0%	$ 479.3	40.9%
1971-72	5,027.3	335.6	6.7	316.2	6.3	216	4.3	526.8	41.0
1972-73	5,615.7	384.7	6.8	373.2	6.6	234	4.2	579.9	40.3
1973-74	7,295.7	445.9	6.1	428.9	5.9	375	5.1	722.6	51.9
1974-75	8,340.2	514.6	6.2	481.5	5.8	446	5.3	866.8	51.4
1975-76	9,500.0	585.5	6.2	538.0	5.7	523	5.5	976.4	53.6
1976-77	10,467.1	683.7	6.5	604.8	5.8	555	5.3	1,092.1	50.8
1977-78	11,685.6	737.5	6.3	666.1	5.7	592	5.1	1,244.9	47.6
1978-79	16,250.8	767.0	4.7	683.0	4.2	854	5.2	975.5	87.5
1979-80	18,534.1	902.0	4.9	814.4	4.4	997	5.4	1,264.7	78.8
1980-81	21,104.8	1,041.0	4.9	952.0	4.5	1,095	5.2	1,403.2	78.0
1981-82	21,666.3	1,099.0	5.1	970.2	4.5	1,079	5.0	1,489.2	72.5

Source: Governor's Budgets, 1971-72 to 1982-83, with actual expenditures for each year reported in the following year's budget summary.

Local property tax revenue support for the Community Colleges increased from $283 million in 1970-71 to $410 million in 1981-82, while total local property tax revenues climbed from $5.722 billion to $7.187 billion. Had Propostion 13 not passed, total property tax revenues would have been $7 billion higher.

In other words, between 1970-71 and 1981-82, the proportion of total State expenditures devoted to public higher education dropped from 17.3 percent to 14.6 percent, largely as a result of the State "bailout" of local government to replace property tax revenues lost under Proposition 13. But as a percentage of total State expenditures plus total property tax revenues, support for public higher education increased slightly--from 10.6 percent to 12.2 percent.

Table 1 shows that the division of these funds among the several public segments has changed in important ways over the 12-year period. The percentage of total State expenditures devoted to current operations of the University declined from 6.9 percent in 1970-71 to 5.1 percent in 1981-82, while the State University's share dropped from 6.3 percent to 4.5 percent. In both instances, the reductions began in the 1978-79 fiscal year when the State decided to replace lost property tax revenues for cities, counties, and special districts including K-12 schools and Community Colleges following the passage of Proposition 13. Since 1978-79, the University's and State University's shares of total State appropriations have increased slightly, but at no time have they approached their earlier levels.

In contrast, State support for the Community Colleges has increased markedly over the 12 years. The most significant increase in the proportion of total State appropriations going to the Community Colleges occurred not in 1978-79 but in 1973-74 as a result of the State's decision to provide local property tax relief and to increase its share of the total expenditures for the Community Colleges. While their amount of State funds increased dramatically in 1978-79, their share of total State expenditures did not change appreciably. Nonetheless, the Community Colleges was the only segment of public higher education to maintain and, indeed, increase their share of State appropriations over the 12 years--from 4.0 to 5.0 percent. At the same time, the earlier balance between State and local funding for the Community Colleges shifted decisively. In 1970-71, State funds accounted for less than 41 percent of Community College total income, with local property tax revenues making up most of the remainder. By 1977-78, the State's proportion was still under 48 percent, but then it increased sharply to between 72 and 88 percent in recent years, as the final column in Table 1 shows.

Non-State Sources of Funds

Over the last two decades, the total operating and capital outlay budgets of the University and State University increased at a much more rapid rate than the rate of growth in the level of State support. In order to finance the full range of instructional, research, and public service activities expected of modern universities, the University in particular and the State University to a lesser extent have secured other sources of funding. Beginning in the mid to late 1960s, State support as a percentage of the total budgets of these two segments has dropped substantially--from about 70 percent to less than 30 percent in the University and from more than 90 percent to around 70 percent in the State University. The University of California and some of its faculty are nationally and internationally recognized and became recipients of major federal grants for contract research by the early-1960s. As a result the State now provides only about 27 percent of the funds in the University's total budget.

Costs of Instruction

Although the four-year segments are increasingly dependent upon external sources of funds to meet some current operating costs, they as well as the Community Colleges depend primarily on the State for funds needed to support their instructional programs. These costs include both the direct costs of instruction and a pro rata share of the costs of libraries, maintenance of plant, and other instructional services, but do not include funds for organized research or public service. According to the Coordinating Council study of 1974, The Cost of Instruction in California Public Higher Education, State General Funds then covered approximately 80 percent of the University's instructional costs and about 93 percent of the State University's (pp. 67, 75). Current comparable data are unavailable, but the percentages probably fall in the same general range today. At the Community Colleges, more than half of the State's support pays for faculty salaries, but here as well no comparable figures exist on instructional costs or on the State's share of them.*

* The Commission's report, Determining the Cost of Instruction in California Public Higher Education, (1980b) examined the many methodological, functional, and practical problems entailed in developing more accurate and reliable data on costs of instruction, and, outlined the expense involved in implementing a range of possible options. However, since then, neither the Department of Finance nor the Legislative Analyst's Office has moved to develop more definitive and comparable cost information.

Nonetheless, some estimate of the average instructional costs for full-time equivalent undergraduates at the University and State University can be made based on figures in the Governor's Budget. (The Budget also contains figures on instructional costs for graduate students in the two segments, but these figures are not comparable.)

Table 2 shows these figures for upper division and lower division students in both 1980-81 and 1981-82. If all levels of students were included rather than only undergraduates, the University would show a higher overall average instructional cost than the State University, even if high-cost health science programs were excluded; but the differences would be attributable more to differences between the segments in the mix of programs and student levels than it would be to differences in actual costs for the same types of students and programs.

The figures in Table 2 are useful primarily to show general differences in costs by level of instruction within segments rather than for comparisons between segments. For example, upper division instruction in both years at the University was 28 percent more expensive than lower division instruction, while at the State University it was 33 percent more expensive. The figures in Table 2 are much less reliable for showing relative costs between the segments or even actual costs within them. In fact, the differences between the figures for the University and State University stem from two principal factors. First, the State's taxpayers provide a larger percentage of total instructional costs and possibly a larger amount of money for instruction per full-time undergraduate at the State University than at the University. Second, the method used to compute indirect instructional costs in the Governor's Budget is much more inclusive for the State University than for the University. Thus, figures for instruction and academic support in the University's budget suggest that its average costs for lower

TABLE 2 State General Fund Cost of Instruction per Full-Time Equivalent Student by Level of Instruction and Segment, 1980-81 and 1981-82

Level of Instruction	University of California		California State University	
	1980-81	1981-82	1980-81	1981-82
Lower Division	$2,505	$2,685	$3,195	$3,273
Upper Division	$3,210	$3,435	$4,249	$4,352

Source: 1982-83 Governor's Budget. Computations based on data from pages E 117 and E 173.

division instruction are probably closer to $3,400 than to the $2,685 shown in Table 2, while the costs for upper division instruction are probably about $4,400 rather than $3,435. As a result, Table 2 should not be interpreted to mean that the total average cost of undergraduate instruction at the University is lower than at the State University. In fact, the total costs of instruction are likely to be somewhat higher at the upper division level in the University than in the State University.

California's Rank in Per-Capita Appropriations

In any assessment of public costs, the ability of the State to support public higher education depends on three factors: (1) the size of the potential stream of income from which such support can be drawn; (2) the character and efficiency of the tax system by which this support is realized; and (3) the willingness of Californians to spend funds for public higher education. Over the last several years, the recession has diminished the income stream; the State's capacity to raise revenue has been eroded by income tax indexing and other post-Proposition 13 tax-cutting measures, and citizen willingness to tax themselves has diminished. At first glance the level of state support seems impressive. California ranked fourth among the states in 1981-82 in terms of combined State and local appropriations for higher education on a per capita basis. It should be noted, however, that California has one of the largest student populations of any state. Thus while it ranks fourth in combined expenditures on a per capita basis, it ranks twelfth in combined expenditures for higher education per full-time-equivalent student. But because California ranks near the very top of the states in per capita income, it also ranks twelfth in terms of combined expenditures per $1,000 of personal income--down from fourth in 1977-78 (State of Washington, 1982b, pp. 7, 9, 11, 17, and 23).

In sum, regarding public costs, California public higher education's share of the total State Budget has declined since 1970-71, although its share of the total State budget and local property tax revenues combined has increased slightly; and it ranks in the upper fourth of the States on various measures of public support for public higher education. The major question confronting the State is not whether it can continue to provide adequate support for higher education, but whether its residents and political leaders are still prepared to do so.

INDIVIDUAL COSTS OF HIGHER EDUCATION

The financial ability of students and their families to contribute to the cost of education must be considered when setting fees and evaluating methods for adjusting them. In doing so, it is essential

to distinguish among various definitions of individual costs of college attendance. One definition of these costs, as the Carnegie Commission points out, is the tuition and required fees charged the student (1973, pp. 20, 21). A second is the out-of-pocket cost to the student and his or her family, including tuition and required fees, room and board, books and supplies, travel, and other living costs which may be partially offset by student financial aid. A third definition includes forgone income as well--the wages or income given up by the student in order to attend college. Consider each of these definitions in turn.

Tuition and Required Fees

The view that tuition and required fees constitute the major financial barrier to college education is most common in State budgetary discussions, particularly where the level of tuition and required fees is determined directly or indirectly by legislative policy and is seen as affecting access to college. Certainly, this view has become deeply ingrained in California thought, with tuition-free "low-cost" public higher education long regarded as the way to make higher education democratically accessible and provide trained manpower for the State's economy.

Indeed, the tuition-free principle can be traced back to the origins of the University of California. Section 14 of the Organic Act of 1868 that established the University stated:

> For the time being, an admission fee and rates of tuition, such as the Board of Regents shall deem expedient, may be required to each pupil, except as herein otherwise provided; and as soon as the income of the University shall permit, admission and tuition shall be free to all residents of the state. . . (Chapter 244, Statutes of 1868, p. 254).

Although the University never became self-supporting as its founders anticipated and wished, the Regents abolished tuition three months after the first students arrived on campus in 1869. The tuition-free principle was then incorporated into the 1872 Political Code and, in effect, into the 1879 State Constitution when the Organic Act was specified in Article IX as the basis for the perpetual organization and government of the University (Coordinating Council, 1965, p. 8). Indeed for more than a century, The Board of Regents has generally operated in accordance with this principle, and the State has provided adequate levels of financial support to assure its implementation.

The Trustees of the State University have also operated on a similar basis for the most part, although the Organic Act which established the State Normal School in San Francisco in 1862 provided in Section 4 that "all persons . . . may be instructed in said school for such rates of tuition as the Board of Trustees may determine" (Chapter 347, Statutes of 1862). This statutory authorization for tuition persisted long after the normal school was relocated and became San Jose State College. In fact, a "tuition fee" existed in the State Colleges between 1933 and 1953. While this fee was subsumed under the Materials and Services Fee in 1954, statutory recognition of the tuition concept continues to exist in the Education Code today (Coordinating Council, 1965, p. 9).

Reflecting on the State's tradition of strong public support for higher education, the members of the 1960 Master Plan Survey Team observed, "Higher education in California is well regarded in the nation for the quality of its programs and services and the broad range of educational opportunities offered its students." Although they recommended increases in the fees students paid for ancillary services, they concluded "that the traditional policy of nearly a century of tuition-free higher education is in the best interests of the State and should be continued" (Master Plan Survey Team, 1960, pp. 172-173). A recommendation to that effect was included in the Master Plan and adopted by the Legislature, with "tuition" specifically meaning student fees assessed to pay a portion of the costs of instruction.

The remarkable durability of the tuition-free, low-cost principle in California cannot be attributed, however, to a consensus of opinion on it throughout the State's long history. The principle has always had its critics, and during brief periods of financial distress even some of its firmest supporters have had their doubts. For example, during the severe depression of the 1890s, some members of the University's Board of Regents recommended imposing tuition on students. In both 1895 and 1899, they were outvoted. At the State University, the 20-year experience of the State's teachers colleges with tuition began with the serious distress and dislocations of the great depression of the 1930s. In more recent years, the tuition-free principle came into question again in 1968 after the defeat of a capital outlay bond issue for higher education. It was reconsidered briefly after the passage of Proposition 13 in 1978, and it has been debated more frequently and openly in the past several years when tax cutting measures combined with a serious economic recession to place severe strains on the State budget. Even the Community Colleges, founded on a tuition-free basis as an extension of the public school system and thus far free of any general required fees, have not been immune from proposals for a general Statewide fee.

While the governing boards of the University and the State University have attempted to adhere to the tuition-free concept for State residents, each has developed fairly sizeable student charges since 1960. These charges differ substantially between the University and the State University, and the difference has grown wider in recent years, as Tables 3 and 4 reveal. These tables also show less marked variation in charges within each segment depending on the campus and the student's academic level. The differences in the Registration Fee at various University of California campuses were first introduced in 1976, when the Regents gave campus chancellors the option of requesting differential increases over the next three budget years. This practice was reauthorized for another three years beginning in 1980-81, with the size of the permitted differentials remaining quite small. The other campus-by-campus differences in student charges stem from variations in the fees that students impose on themselves to support a variety of local activities. These variations are likely to continue in both the University and the State University.

There is no question that tuition and required fee levels have a major effect on students' opportunity to obtain a college education. Economist Joseph Pechman of the Brookings Institution argues (1970, pp. 369-370):

> My own view is that a system which provides free, or almost free, access to a public institution of higher learning to all qualified students is the simplest and the most effective method of insuring enrollment of qualified poor and near-poor students.

The reason is that tuition and required fees serve as a powerful symbol of the price of admission to collegiate institutions. Even though this posted price may be modified significantly by financial aid programs that permit the attendance of students who are unable to pay it, the literature on the effectiveness of financial aid suggests that posted price of attendance has a greater impact than net price on students' application decisions. It influences both access and student choice because at the time students decide where to apply and which institutions they and their families can afford, they are generally uncertain about whether they will qualify for financial aid and about how much aid they may receive if eligible.

Yet, as important as these psychological and symbolic barriers can be for certain students, the idea that tuition and required fees are the only financial barrier or even the major one is a limited view because even in public institutions tuition and required fees represent only a portion of the cost of education to the student.

TABLE 3 Required Student Charges for State Residents at Selected University of California Campuses, 1981-82 and 1982-83

Campus	Registration Fee (Including Health Fee) 1981-82	1982-93	Educational Fee 1981-82	1982-83	Student Activity Fee 1981-82	1982-83	Other Fee 1981-82	1982-83	Total Annual Charges 1981-82	1982-83
BERKELEY										
Undergraduate	$468.00	510.00	$450.00	627.00	$ 37.50	37.50	$ 25.00	-	$ 980.50	1,174.50
Graduate	468.00	510.00	510.00	687.00	37.50	37.50	25.00	-	1,040.50	1,234.50
Law School	468.00	510.00	510.00	687.00	47.50	67.50	25.00	-	1,050.50	1,264.50
DAVIS										
Undergraduate	477.00	510.00	450.00	627.00	40.50	51.00	25.00	-	992.50	1,188.00
Graduate	477.00	510.00	510.00	687.00	19.50	19.50	25.00	-	1,031.50	1,216.50
Law School	477.00	510.00	510.00	685.00	15.50	15.50	25.00	-	1,027.50	1,212.50
SAN FRANCISCO										
Undergraduate	468.00	510.00	450.00	627.00	73.50	84.60	25.00	-	1,016.50	1,221.60
Graduate	468.00	510.00	510.00	687.00	73.50	84.60	25.00	-	1,076.50	1,281.60
Law School	468.00	510.00	510.00	687.00	73.50	84.60	25.00	-	1,076.50	1,281.60
SANTA CRUZ										
Undergraduate	462.00	510.00	450.00	622.00	102.00	132.00	25.00	-	1,039.00	1,269.00
Graduate	462.00	510.00	510.00	687.00	102.00	132.00	25.00	-	1,099.00	1,329.00

Source: University of California, 1981, 1982

TABLE 4 Required Student Charges for State Residents at Selected California State University Campuses, 1981-82 and 1982-83

Campus	Student Services Fee 1981-82	1982-83	State University Fee 1981-82	1982-83	Student Body and Facilities Fees 1981-82	1982-83	Other Fees 1981-82	1982-83	Total Annual Charges 1981-82	1982-83
HAYWARD	$205.50	$216.00	-	$150.00	$40.00	$40.00	$62.00	$16.00	$302.50	$422.00
LOS ANGELES	205.50	216.00	-	150.00	50.00	50.00	62.00	16.00	317.50	432.00
SAN JOSE	205.50	216.00	-	150.00	54.00	78.00	62.00	16.00	321.50	460.00
SAN LUIS OBISPO	205.50	216.00	-	150.00	68.00	68.00	62.00	16.00	335.50	450.00

Source: California State University, 1981c, 1982.

Out-of-Pocket Costs

A broader view is that the financial barrier to college includes what college catalogs often call the "estimated costs of attendance." These include the costs to the student and family of tuition and fees, room and board (either living at home, in a dormitory, or off campus), books and supplies, travel, and other living expenses. This is the measure of individual costs which is used in analyzing students' need for financial aid and in determining the amounts of grants, work-study opportunities, and loans to be awarded through federal, State, and institutional student aid programs.

Variations obviously exist in "typical" student budgets. Students who reside at home while attending college generally spend less than those who live in dormitories or off campus, just as costs for living away from home tend to be higher in urban areas than in smaller towns or cities. Indeed, one of the reasons the Master Plan Survey Team recommended the diversion of many lower division students from the University and the then State Colleges to the "readily accessible junior colleges" was "to protect family incomes by permitting more students to live at home while attending college" (1960, p. 169). This pattern of commuting from home is most common at the Community Colleges, but it is also widespread at the State University.

All three public segments enroll large numbers of single students living off campus but away from home. According to guidelines printed by the California Student Aid Commission, the total out-of-pocket costs during 1981-82 for such students would average about $4,600 at a typical Community College, $4,900 at a State University, and $5,600 at the University. The differences stem largely from the required fees charged at the senior institutions and from variations in the cost of living in different communities throughout the State.

In other words, in all three public segments, the major portion of the cost of college to full-time students who live away from home is not required fees but instead living expenses.

Costs of Forgone Earnings

A third approach to the definition of individual cost adopts a still broader measure which includes required fees plus what is called the "opportunity cost" of college attendance--the "forgone earnings" or the wages given up by attending college. The Carnegie Commission in its study, Higher Education: Who Pays? Who Benefits? Who Should Pay?, explains (1973, p. 51-52):

> Although the inclusion of forgone income is appropriate for certain types of analysis of college costs--and it is a very

real cost to the student who must give up a job to complete college-for other types of considerations it may not be relevant. For the typical parent who supports a son or daughter through college, the choice may be between paying for college costs, or having the son or daughter become an independent economic unit. Thus no income to these parents is forgone--they merely would be relieved of subsistence costs if their child did not attend college, and these costs are already included in the estimate of monetary outlays for college attendance.

Similarly, forgone income is not a major factor in the shortrun calculations of costs for many students from relatively affluent families. In these cases, the alternative to entering college may not be an immediate job, but travel, public service, or the enjoyment of leisure time in the final years of maturing into adulthood. But for some students from low-income or from lower-middle-income families, forgone earnings are likely to be viewed as a significant sacrifice . . . . Thus, when we consider total economic costs, we find that the barriers to college attendance for young people from low-income families appear relatively more severe than in terms of monetary outlays alone.

The issue of forgone earnings thus cannot be ignored. For some poor families who rely on a son's or daughter's earnings, forgone earnings may represent so large a cost that it actually prevents the prospective student from attending college, even though for many poor families, as well as most middle-income and well-to-do families and independent students who work full- or part-time while attending college part-time, the question of forgone earnings is irrelevant.

Various methods exist for calculating plausible dollar figures for forgone earnings, but their use is best confined to estimating the private rate of return on an investment in a college education. When trying to determine the appropriate balance between the public cost of providing higher education and the individual cost of securing such an education, the inclusion of forgone earnings in computing individual cost for most students is inappropriate. Because it is almost impossible to determine for which families forgone earnings represent a genuine cost and for which it does not, most studies, including the present one, use out-of-pocket costs as the best estimate of the individual cost of securing a public higher education.

Variations in Cost

In summary, several aspects of the individual or private cost of higher education in California are noteworthy:

- Most California Community Colleges charge no required fees to California residents who are regular students, and the statewide

average charge of selected user fees is less than $40 a year. In 1981-82, the average charge or required fees for full-time undergraduate State residents was $997 at the University and $316 at the State University, and for 1982-83, it will increase to $1,194 and $441, respectively.

- Overall, these required fees for California residents at the State's public institutions are among the lowest in the nation--a fact that will be developed more fully later. However, this pattern is neither an accident nor an oversight. Required fees have been kept low for decades because of a conscious decision by generations of State policy makers and education officials to do so in the interest of providing access to higher education for all qualified State residents.

- Finally, the individual cost of college includes more than simply required fees. In fact, the out-of-pocket cost for California residents in 1982-83 will range from about $4,600+ for a Community College student living away from home to $6,200 for a similar student at the University of California. These figures make it clear that a student's investment in a college education is substantial even under the State's existing "tuition-free, low-cost" policy. Indeed, a large and growing number of students and their families require financial assistance in order to meet these costs.

Comparison of Public and Private Costs

Several conclusions about the current relationship between public and individual costs of higher education appear warranted, even though obvious difficulties are inherent in attempting to quantify these costs with great precision.

First, in both the University and State University, the individual's share of the total cost of undergraduate education--$5,000 to $6,000 a year--is significantly different than the public share or subsidy for instruction--$3,500 to $4,500 a year--spent by the State. Of course, funds provided for financial aid for students with demonstrated need often shift this balance for particular students.

Second, the same conclusion is probably not true for graduate students in these two segments, especially those in some professional programs in the health sciences at the University, where State subsidy clearly exceeds the individual cost.

Third, generalizations are more hazardous for the Community Colleges, but it appears that the cost to the taxpayer to help provide a Community College education does not exceed the total cost to the

student, although it virtually always greatly exceeds the direct costs. For the large number of commuter students in the Community Colleges who live at home, and the great many who work part-time or full-time, fees, books and supplies, and direct transportation costs, but not general living expenses, should be counted in determining their cost of education.

EQUITY IN ALLOCATING COSTS TO BENEFITS

Evaluations of the benefits and costs of higher education have often focused on questions of equity and efficiency. Howard Bowen estimated that on the aggregate level, public benefits from higher education exceed public costs by a factor of three, but the issue here is whether the benefits and costs are distributed equitably. The initial approach to equity was to treat higher education subsidies like other government transfers and judge them according to their effects on the current distribution of income. Hansen and Weisbrod (1969) looked at benefits and costs for student and non-student families in California and concluded that low-income groups subsidize high-income groups. On the other hand, Pechman (1970), Machlis (1973), and McGuire (1976) have pointed out serious flaws in the Hansen and Weisbrod approach and using the same data have concluded that the redistribution of income brought about by higher education subsidies in California was progressive. After a most thoughtful review of the literature, Susan M. Nelson (1978) concluded that a more appropriate way to examine the equity question is to recognize the special nature of higher education and consider its role in equalizing opportunities as well as the distribution of income. This approach examines the costs--the distribution of the tax burden from which higher education subsidies come--separately from the benefits of higher education--the education provided to students and higher education's role in equalizing educational opportunity.

In any event, evaluating the benefits and costs of higher education is exceedingly complex because the benefits of public higher education are not enjoyed by the same generation that pays the costs. As Joseph Pechman has observed (1970, pp. 368, 369) the effect of such intergenerational transfers "cannot be evaluated by comparing the discounted benefits of the future generation of earners with the costs incurred by the present generation of persons who pay the taxes to create these benefits." Instead the voters and public officials must decide whether an investment in higher education is desirable from a social point of view. This involves balancing the expected public benefits against the costs. Then if the decision to invest in higher education continues to be affirmative, as it has been for more than a century in California, they must decide how the costs should be allocated.

This information about costs and benefits helps define the existing relationship between the public and individual costs of higher education, but it does not resolve the question of what the relationship should be in light of its public and individual benefits. That requires a look at how fees are currently set in California and in other states, as well as a careful assessment of the implications of adopting some other approach to setting student charges: the subjects of following chapters.

CHAPTER TWO

STUDENT FEES AND FEE POLICIES IN CALIFORNIA

THE AUTHORITY TO SET STUDENT FEES IN CALIFORNIA

Differences exist among the University of California, the California State University, and the California Community Colleges in the authority to set and adjust student charges.

The University of California

The 1879 Constitution and the Revisions of 1918 gave to The Regents of the University of California "full powers of organization and governance," including the power to set the level of student tuition and fees. Nevertheless, the Legislature and the Governor can, if they choose, severely limit the Regents' options through budget control language and General Fund appropriations to the University. This happened in 1899 when Governor Gage persuaded the Regents to rescind a tuition fee they had just approved, in 1970 when Governor Reagan convinced the Regents to double student fees, and in 1981-82 when the Legislature imposed a $10.5 million undesignated budget cut that forced the Regents to raise fees, and again for 1982-83.

The California State University

The Trustees of the California State University have the statutory authority "by rule [to] require all persons to pay fees . . . and charges for services, facilities or materials provided by the Trustees to such persons . . . ."--provided that "the total tuition fees charged any [resident] students of the California State University . . . shall not exceed twenty-five dollars per year" (Section 89703, Education Code). Unlike the University, where the Regents retain revenues from student fees, State University fee revenues are considered to be offsets to State General Fund appropriations and are not retained by the Trustees. The authority to change fees thus resides with the Trustees, yet the Legislature is involved if any major changes in fee levels are proposed.

The California Community Colleges

Only the Legislature has the power to set permissive fees and to determine their maximum levels for State-funded operations of the

Community Colleges. However, local governing boards can decide whether or not to impose such fees. Currently, 18 fees are authorized by the Legislature that Community Colleges may charge, but until the last several years most local boards elected to use local tax revenues instead. Thus, boards can charge fewer fees or lower fees than the maximum level authorized, and they retain the authority to set fees for community services and other non-credit courses which do not receive State support; but they cannot impose any fees for State-funded operations that the Legislature has not authorized or charge more than the authorized level. None of the currently authorized fees for State-supported courses are for direct instructional purposes, although certain courses in some districts are subject to instructional materials fees.

KINDS OF STUDENT FEES AND THEIR USE

"Tuition" generally refers to a charge levied on students to help defray instructional costs. California policy has been to use student charges for purposes complementary to, but not a part of, the instructional program. Thus, students at the four-year institutions help pay the cost of student services, but do not help fund instruction. None of the three public segments currently charges tuition to students who are California residents, except for those taking community service or extension courses.

Both the University and the State University charge tuition, however, for nonresident or out-of-state students. Although waived for some graduate students from other states as a form of financial aid, nonresident tuition at the University was $2,880 for the 1981-82 academic year and is $3,150 in 1982-83. At the State University, the nonresident tuition charge was $2,835 in 1981-82 and is $3,150 in 1982-83. In addition to paying tuition, nonresident students in both segments are charged the same fees as resident students. The Community Colleges make two kinds of "nonresident charges:" (1) charges for resident students attending out-of-district institutions--generally paid by the district of residence to the district of attendance, and (2) nonresident tuition paid by nonresident students to the college they attend. The amount of nonresident tuition charged varies from district to district.

University of California Fees

The University of California presently charges students a Registration Fee, an Educational Fee, and a variety of Student Activity

Fees. According to policies adopted by the Regents, income from the Registration Fee "shall continue to be used for services, other than financial aid, which benefit the student and which are complementary to, but not a part of, the instructional program." Until 1977-78, a portion of the Registration Fee supported the cost of administering the University's financial aid programs, but when the State refused to allow this cost to be shifted to General Fund support, the Regents decided to support administration of financial aid from Educational Fee income. Until 1978-79, a small portion of the Registration Fee income was also spent on instruction and departmental research laboratory costs, but at that time these activities were shifted to General Fund support.

The University established its Educational Fee in 1970. Until recently, it used the fee primarily to finance capital outlay projects, although the fee also helped support various operating programs. In 1976, the Regents adopted a policy that "Educational Fee income shall be used exclusively for support of student financial aid and related programs." In July 1981, the Regents approved the first increase in the Educational Fee since 1971 to (1) offset a permanent $10.5 million reduction in 1981-82 State General Fund support for student services programs, and (2) provide an increase for student financial aid programs. At that time, the Regents modified the 1976 policy to use the fee to help support "those centrally funded student services programs which lost State General Fund support," including programs in the areas of social and cultural events, supplemental educational services and counseling, and career guidance. Again for 1982-83, the University increased the Educational Fee to help cover student services that lost State support.

In 1981-82, the University used $36.96 million in Educational Fee revenues to provide student financial aid grants and provided an additional $5.85 million in Educational Fee deferrals. It spent $4.45 million of Educational Fee revenues on student affirmative action programs, $7.77 million for student financial aid administration, and $2.88 million for student loan collection. It spent the rest of these revenues to cover $6.56 million in other budget shifts from General Funds and to offset $5.00 million of the one-time 2 percent budget reduction in 1981-82. Graduate and professional students' Educational Fees are $60 per year more than undergraduates, and most of the added revenues are used to provide financial aid to those students with demonstrated financial heed.

University nonresident tuition revenues are considered to be offsets against State appropriations for instruction and other state fund operations, but revenues from both the Registration and Educational Fees are generally considered to be revenue in addition to State appropriations, tied directly to the expenditures of the

offices and activities which they support, and thus are kept and expended by the University and its campuses.

Individual campuses of the University also charge a variety of Student Activity Fees, up to the limit adopted by the Regents, to help finance a large number of student programs, student organizations, and facilities for student activities. Such fees vary from campus to campus, and the income from them is retained by each campus to support its own distinctive mixture of student activities.

State University Fees

In the State University, students are expected to pay two general kinds of fees: a Student Services Fee and a Student Activity Fee. The Student Services Fee, once called the Materials and Services Fee, corresponds most closely to the Registration Fee at the University. Used primarily to support student services, it is based on the operating costs for counseling, testing, career planning and placement, social and cultural development, health services, financial aid administration--but not financial aid grants themselves--housing administration, and one-half of the existing costs of operating the Dean of Students' office.

Until 1979-80, a portion of the Student Services Fee also covered costs for "instructional supplies and audiovisual materials." Beginning in 1975-76, however, the Fee was held constant for four years until the General Fund absorbed the full cost of these supplies and materials. Until recently, the Trustees elected to maintain a two-level fee structure for the Student Services Fee whereby part-time students taking six units or less per term were charged a lower Student Services Fee than other students. Since the instructional supplies and materials portion of the Fee were phased out in 1978-79, a special Chancellor's Task Force on the Student Services Fee recommended in November 1981 that this differential be eliminated beginning in 1982-83. This recommendation was adopted by the Board of Trustees.

Another special Chancellor's Task Force--this one on a New Student Fee--reported in December 1981 on a fee designed to enable the State University to (1) offset proposed reductions in General Fund support during the 1982-83 academic year, and (2) create a source of financial aid grant funds. It recommended the adoption of a new "State University Fee" that would be sufficient to make up the difference between a desired or program maintenance level of support and State appropriations, and the new fee was later adopted to offset reductions in State support. The new fee is differentiated for students taking 0 to 5.9 units ($48 per year) and those taking

6 units and above ($150 per year). A portion of the revenue realized from the new fee was originally to be used to provide financial aid for needy students enrolled for at least a half-time load in a manner similar to the current University of California Educational Fee aid program. Rather than provide the aid funds directly from fee revenues, the Legislature appropriated $3.4 million for State University students in 1982-83 through a separate appropriation.

Like the University, the State University's nonresident tuition revenues are considered to be offsets against State appropriations for instruction and other State fund operations. However, unlike the University, the revenues from the State University's Student Services Fee are not retained by the system and its institutions, but are also considered to be offsets against State appropriations. State University campuses retain only the income from their Student Activity Fees which vary slightly from campus to campus.

California Community College Fees

Aside from nonresident tuition and fees for community service classes and activities, none of the other fees that the Community Colleges are authorized to charge are normally considered in discussions of tuition and required fees. Instead, they are either small incidental or "users' fees" that are common in the University and State University as well, but are not charged to all students as a condition of attending. These incidental or miscellaneous users fees in the Community Colleges include: fees for parents using a campus child-development or day-care center, dormitory charges, fees for eye-protection devices, fees for field trips and for field-trip insurance, health fees (ranging from $1 to $5), instructional materials fees (generally lab breakage, art, or vocational education course materials fees), late application fees, materials fee for adult classes, medical insurance fees for athletes, parking fees, physical education fees for use of nondistrict facilities like golf courses and bowling alleys, program change fees, and student record or transcript fees. Since most of these are users' fees rather than required fees, their amount varies widely among students in the same institution and at different institutions because the courses and activities of individual students vary and because they are discretionary fees which some districts charge and others do not. In any event, whatever discussion is warranted on the subject of these fees, the debate should not confuse these users' fees in the Community Colleges and the four-year segments with the tuition and required fees charged students in public four-year institutions.

PAST AND PRESENT LEVELS OF STUDENT FEES IN CALIFORNIA

Table 5 compares the average required fees for resident undergraduates and the tuition and required fees for nonresident undergraduates in each of the three public segments from 1972-73 to 1982-83. Table 6 provides the comparison figures for graduate students in the two senior segments during this same period. In both tables, the figures from 1972-73 to 1982-83 are actual levels.

Undergraduate Charges

As Table 5 shows, after the introduction of the Educational Fee in 1970-71 at the University and its doubling under pressure from then Governor Reagan in 1971-72, total resident undergraduate student charges increased very little during the next five years. Student charges for residents increased by approximately 10 percent in 1977-78, increased minimally in 1978-79, and then remained unchanged in 1979-80. This pattern reveals that while the passage of Proposition 13 affected the University's overall level of General Fund support, it had almost no impact on the level of fees charged resident students for nearly three years. However, in both 1981-82 and 1982-83, State budget shortages led to sharp increases in student charges for resident undergraduates. Nonresident undergraduates faced tuition increases a bit earlier with marked jumps in 1976-77, 1979-80, 1981-82, and 1982-83.

In the State University, the story has been much the same, although the State University experienced no dramatic fee increases at the start of the decade and began and ended the decade with substantially lower fees than the University. After a $33 increase in student charges for resident undergraduates in 1974-75, these charges increased by only $28 between 1974-75 and 1980-81. Part of the reason for this small increase was an agreement by the Trustees to hold the Student Services Fee constant at mid-decade until the remaining "instructional materials and audiovisual supplies" component of the Fee was transferred to General Fund support. The sharp increase faced by resident students in 1981-82 stemmed from the $46 increase in the Student Services Fee and an emergency $46 Spring Semester surcharge designed to offset some of the revenues lost as a result of a 2 percent current year reduction in the State University's General Fund appropriations. The removal of the one-time surcharge, the $11 increase in the Student Services Fee for full-time students, and the introduction of the $150 State University Fee for full-time resident students produced a total fee increase for 1982-83 of $125.

TABLE 5 Undergraduate Tuition and Required Fees in California Public Institutions, 1972-73 to 1982-83

	University of California Undergraduates		State University Undergraduates		Community Colleges All Students	
Year	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident
1972-73	$644	$2,144	$161	$1,271	$0	n.a.
1973-74	644	2,144	161	1,366	0	n.a.
1974-75	644	2,144	194	1,494	0	n.a.
1975-76	648	2,148	194	1,494	0	n.a.
1976-77	648	2,543	194	1,634	0	n.a.
1977-78	710	2,615	194	1,769	0	n.a.
1978-79	731	2,636	206	1,916	0	1,500[a]
1979-80	731	3,131	204	2,004	0	1,500[a]
1980-81	775	3,175	222	2,382	0	1,500[a]
1981-82	997[b]	3,877[b]	316[c]	3,151[c]	0	1,500[a]
1982-83	1,194	4,344	441	3,591	0	1,500[a]

a. Average nonresident tuition charged by California Community Colleges.
b. Includes $25 one-time Spring Quarter surcharge to help cover 2 percent current year budget reduction.
c. Includes $46 one-time Spring Semester surcharge to help cover 2 percent current year budget reduction.

Source: Based on data in University and State University documents.

TABLE 6 Graduate Tuition and Required Fees in California Public Institututions, 1972-73 to 1982-83

	University of California Graduate Students		State University Graduate Students	
Year	Residents	Nonresidents	Residents	Nonresidents
1972-73	$704	$2,204	$161	$1,271
1973-74	704	2,204	161	1,366
1974-75	704	2,204	194	1,494
1975-76	708	2,208	194	1,494
1976-77	708	2,603	194	1,634
1977-78	770	2,675	194	1,769
1978-79	791	2,696	206	1,916
1979-80	791	3,191	204	2,004
1980-81	824	3,224	222	2,382
1981-82	1,043[a]	3,923[a]	320[b]	3,155[b]
1982-83	1,240	4,390	441	3,591

a. Includes $25 one-time surcharge for Spring Quarter to help cover 2 percent current year budget reduction.
b. Includes $46 one-time surcharge for Spring Semester to help cover 2 percent current year budget reduction.

Source: Based on data in University and State University documents.

In contrast to the slow increase in charges for resident students in the State University until 1982-83, nonresident undergraduates have experienced six significant increases since 1972-73. The largest occurred in 1981-82, when pressure from the Governor's Office for a $495 increase, an earlier Trustee decision to increase nonresident tuition by $180, and regular fee increases combined to produce a $772 increase in their overall student charges. As a result, actual revenues from nonresident tuition in 1981-82 were well below anticipated levels because of a drop in the number of nonresident students, and another $315 increase in nonresident charges occurred in 1982-83 in addition to the $125 increase in fees scheduled for all State University students.

Graduate Student Charges

Tuition and required fees for graduate students in both segments have followed the trends evident among their resident and nonresident undergraduate counterparts. In fact, there is no fee differential at all between undergraduate and graduate students in the State University. Within the University, the only major difference is that graduate students are charged $60 more for their Educational Fee than undergraduates. This is offset in part by slightly lower Student Activity Fees for graduate students. Furthermore, since the amount of the graduate-undergraduate differential has not changed since the Educational Fee was first introduced, the relative size of the graduate-undergraduate differential has actually decreased as overall charges increased.

Undergraduate Charges Measured in Constant Dollars

Table 7 compares resident and nonresident tuition and required fees in the University and the State University in terms of actual dollars and constant dollars between 1972-73 and 1982-83, using the "Implicit Price Deflator for Personal Consumption Expenditures" (PCE) to adjust actual constant dollars. This index is employed instead of the Consumer Price Index (CPI) because the latter tends to overstate the actual inflation rate by assigning too great a weight to new housing and housing finance costs. The rate for the 1981-82 PCE is assumed to be 7.5 percent as in the UCLA School of Management Forecast, and the rate for 1982-83 is assumed to be 7 percent by the same source.

University of California: The contrast between actual and constant dollar charge increases is most dramatic for resident undergraduates at the University. With virtually steady actual fee levels between 1972-73 and 1976-77 and only modest upward adjustments in fees from then until 1981-82, increases in their charges exceeded

TABLE 7 Undergraduate Tuition and Required Fees in

University of California
Undergraduates

Year	Residents			Nonresidents		
	Actual Dollars	Constant Dollars	Index	Actual Dollars	Constant Dollars	Index
1972-73	$644	$644	1.000	$2,144	$2,144	1.000
1973-74	644	595	.924	2,144	1,979	.923
1974-75	644	538	.835	2,144	1,790	.835
1975-76	648	510	.792	2,148	1,691	.789
1976-77	648	485	.753	2,543	1,902	.887
1977-78	710	501	.778	2,615	1,846	.861
1978-79	731	480	.745	2,636	1,730	.807
1979-80	731	438	.680	3,131	1,876	.875
1980-81	775	425	.660	3,175	1,739	.811
1981-82	997[a]	508	.789	3,877[a]	1,975	.921
1982-83	1,194	569	.884	4,344	2,069	.965

a. Includes $25 one-time Spring Quarter surcharge to help cover 2 percent

b. Includes $46 one-time Spring Semester surcharge to help cover 2 percent

Source: Computations based on data in University and State University documents.

California Public Institutions, 1972-73 to 1982-83

State University Undergraduates

Residents			Nonresidents		
Actual Dollars	Constant Dollars	Index	Actual Dollars	Constant Dollars	Index
$161	$161	1.000	$1,271	$1,271	1.000
161	149	.924	1,366	1,261	.992
194	162	1.006	1,494	1,247	.981
194	153	.950	1,494	1,176	.925
194	145	.901	1,634	1,222	.962
194	137	.851	1,769	1,249	.983
206	135	.838	1,916	1,257	.991
204	122	.759	2,004	1,201	.944
222	122	.755	2,382	1,305	1.026
316	161	1.000	3,151	1,605	1.263
441	210	1.304	3,591	1,710	1.345

current year budget reduction.

current year budget reduction.

the inflation rate in just one year--1977-78. The overall pattern evident in the index values was sharply downward in constant dollars through 1980-81 so that, in that year, resident undergraduates were paying the equivalent of one-third less than their counterparts in 1972-73 did. Moreover, these same years witnessed a dramatic expansion of both State and federal financial aid programs. The Cal Grant A program increased the number of available awards markedly during the early 1970s, and the Cal Grant B program enjoyed even greater increases in the latter part of the decade. Of more significance was the introduction of the BEOG program by the federal government in 1974, and the dramatic expansion of eligibility for it in 1978 with the passage of the Middle Income Student Assistance Act. Without question, the combination of dramatic increases in financial aid which decreased the net cost of attendance for many students and the steady decrease in student charges (in constant dollars) at the University between 1972 and 1981 produced a substantial decrease in the real cost of attendance there.

This pattern began to change significantly in 1981-82. First, the 28.6 percent increase in resident student charges that year was nearly four times greater than the 7.5 percent rate of inflation. Second, access to GSL loans was restricted for many University students, and State funding cuts meant that the Cal Grant A program did not cover the full fee increases for the University's Cal Grant A recipients. The increase in resident fees for 1982-83 was not accompanied with sufficient additional funds for the Student Aid Commission so that this increase too will only be partially covered for the University's Cal Grant recipients. Further, major changes proposed by the Reagan Administration are likely to make many University students ineligible for Pell Grants and may further reduce eligibility for guaranteed student loans in the future. While the adopted fee level for 1982-83 is still just 88.4 percent of the 1972-73 level (measured in constant dollars), it is more than one-third above the level of just two years ago. Coupled with changes in financial aid programs, the latest round of fee increases mean that the real cost of attending the University increased sharply in both 1981-82 and 1982-83.

The more regular and substantial fee increases in nonresident tuition and required fees at the University meant that total charges for these students declined fitfully between 1972-73 and 1980-81, but not at as rapid a rate as resident student charges. Both the constant dollar and index values for nonresident student charges reveal that increases in their total charges exceeded the rate of inflation in 1976-77, 1979-80, 1981-82, and again in 1982-83. Moreover, the low point for nonresident charges when measured in constant dollars occurred in 1978-79, not 1980-81 as for residents. Nevertheless, the 1981-82 increases and those adopted for 1982-83

mean that nonresidents at the University are paying nearly as much (96.5%) in total tuition and required fees as their counterparts did in 1972-73.

California State University: Resident undergraduates in the State University paid one-fourth less in real terms for student charges in 1980-81 than their counterparts did in 1972-73. Increases in 1981-82, including the $46 surcharge, returned State University fees to their earlier levels, and after adjusting for inflation, the 1982-83 fee level will be 30.4 percent above the 1972-73 level for their resident students. However, with total resident fees that were only about one-fourth of the fee level in the University at the start and one-third the level at the end of this period, the actual dollar increases in State University fee levels with the exception of 1982-83 have almost invariably been quite small for residents. For example, the $197 actual dollar increase in charges at the University this year exceeded the entire actual dollar increase in charges at the State University between 1972-73 and 1981-82.

Nonresident students in the State University have faced more dramatic fee increases in both actual and constant dollars than any other group of students during this period. In 1972-73, nonresidents paid $1,271 in tuition and required fees to attend, and in 1982-83 they pay $3,591. Measured in constant dollars, nonresident tuition and required fees in the State University have rarely slipped much below the 1972-73 level, and starting in 1980-81 actually exceeded the earlier level. In 1981-82, nonresidents paid 26.5 percent more in real terms than their 1972-73 counterparts, and in 1982-83 they are scheduled to pay 34.5 percent more.

Impact of the Base Year on Indexing

Indexing for inflation is a relative and not an absolute measure which depends on both the index used and the base year selected. Table 8 provides the same information as Table 3 and uses the same index--the PCE--but it employs 1977-78 instead of 1972-73 as its base year.

University of California: From the perspective of Table 8, the constant dollar decline in resident undergraduate charges at the University is not nearly so sharp as in Table 7. In 1981-82, students paid 1.3 percent more than their counterparts in 1977-78 did, and in 1982-83 residents pay 13.4 percent more than similar students did in 1977-78. Nonresident students at the University have seen their tuition and required fees increase by more than the rate of inflation in all except two years, and this year they will pay in real terms 12 percent more than nonresident students paid in 1977-78.

TABLE 8 Undergraduate Tuition and Required Fees in

University of California
Undergraduates

Year	Residents			Nonresidents		
	Actual Dollars	Constant Dollars	Index	Actual Dollars	Constant Dollars	Index
1977-78	$710	$710	1.000	$2,615	$2,615	1.000
1978-79	731	679	.956	2,636	2,450	.937
1979-80	731	620	.873	3,131	2,657	1.016
1980-81	775	601	.846	3,175	2,463	.942
1981-82	997[a]	719	1.013	3,877[a]	2,797	1.070
1982-83	1,194	805	1.134	4,344	2,930	1.120

a. Includes $25 one-time Spring Quarter surcharge to help cover 2 percent

b. Includes $46 one-time Spring Semester surcharge to help cover 2 percent

Source: Computations based on data in University and State University documents.

California Public Institutions, 1977-78 to 1982-83

State University Undergraduates

Residents			Nonresidents		
Actual Dollars	Constant Dollars	Index	Actual Dollars	Constant Dollars	Index
$194	$194	1.000	$1,769	$1,769	1.000
206	191	.955	1,916	1,780	1.008
204	173	.892	2,004	1,700	.961
222	172	.888	2,382	1,848	1.045
316	228	1.175	3,151	2,274	1.285
441	298	1.536	3,591	2,422	1.369

current year budget reduction.

current year budget reduction.

California State University: State University resident student charges have followed the pattern evident for the University except that State University student fees increased at a greater rate although they began and ended at substantially lower amounts. In 1981-82, resident students at the State University paid 17.5 percent more in constant dollars than did State University students four years ago. In 1982-83, full-time resident students pay 53.6 percent more than their counterparts did in 1977-78. Nonresident tuition and required fees failed in only one year to exceed the inflation rate, and nonresident State University students paid 28.5 percent more in constant dollars in 1981-82 than similar students did in 1977-78. In 1982-83, nonresident tuition and required fees are 36.9 percent higher than in 1977-78.

CONCLUDING OBSERVATIONS

The kinds of student fees that California public postsecondary institutions charge and their uses of these fees make California somewhat exceptional among the states. The tradition that students should not pay any of the direct cost of instruction is the first and most striking example, although in many ways it is a natural legacy of the State's long history of tuition free public higher education and the recommendations of the 1960 Master Plan. Yet, it might be argued that since the major individual benefits students secure from a higher education derive most directly from the instruction they receive, students should bear some of the responsibility for paying a portion of these costs. Moreover, though this portion might not change, the amount paid might increase periodically to reflect increases in instructional costs.

A second distinctive, though not unique, feature of California's current student fees and their use involves the use of a portion of these fees to provide financial aid to other students. Students now provide the money for the administration of financial aid programs on University and State University campuses, but those costs are funded by the State in the Community Colleges. Moreover, in 1981-82, University of California students through their Educational Fee are providing $42.8 million in financial aid grants and waivers for their fellow students, although no student fee revenues are being used for this purpose in either the State University or the Community Colleges. This year, the State is providing through the Cal Grant programs $16.3 million in financial aid to University undergraduates, $10.2 million to State University undergraduates, $8.8 million to Community College students, and $55.8 million to undergraduates at independent institutions. In addition, the Legislature appropriated $3.4 in financial aid funds for the State

University for 1982-83 to cover increased fees for financially needy students, but in the University the additional aid funds again came from student fee revenues.

Because the public and individual benefits of higher education cannot be measured against the public and individual costs with any precision, one useful approach to trying to resolve this dilemma is to examine other methods of setting student charges that have been used or that might be used. At the same time, it is essential to remember that student charges should not be determined in a vacuum or in an inconsistent, ad hoc fashion. The goals which the State hopes to achieve through its system of higher education may need to be reassessed along with its existing student fee and student aid practices and policies, but those goals should be the starting point for any evaluation of student charges and student aid needs.

CHAPTER THREE

ALTERNATIVE POLICIES FOR SETTING STUDENT CHARGES

Major issues in determining the level of student charges in higher education include not only the question of what share of the cost of education should be borne by students as opposed to outside sources of financial support, such as State and local government, but also the question of differential charges for different students. Among the elements or bases commonly used by states in determining appropriate levels of student charges are (1) a predetermined percentage of the cost of instruction in different types of institutions; (2) the level of students, such as lower division, upper division, or graduate; (3) a comparison with charges at other institutions; (4) the distinction between credit and noncredit courses or between regular and extension offerings; (5) differences in the future earning potential of students with different majors; and (6) anticipated budget shortfalls. This paper reviews each of these alternative policies in turn.

BASING CHARGES ON THE COST OF INSTRUCTION

The cost-of-instruction method of setting tuition or required fees is used currently by 17 states including Arizona, Colorado, Florida, Kansas, Maine, Massachusetts, New Jersey, Ohio, Oklahoma, Oregon, Rhode Island, Virginia, Washington, and Wisconsin for all undergraduates and, in some instances, for graduate students. New Hampshire uses this method for nonresident students; Michigan and Minnesota use variations of it for setting both resident and nonresident student charges at some of their public institutions; and at least five other states are considering adopting it (Maryland State Board for Higher Education, 1982, pp. 2-15).

In general, this method requires a precise specification of all the components of an institution's budget. At the very least, it involves distinguishing between instruction-related costs and other costs, such as research and public services. Instruction-related costs generally include both the direct cost of instruction and a pro rata share of the costs for libraries, maintenance of plant, and other institutional services. Computing these costs requires uniform accounting procedures at all of a state's public institutions and some agreed upon procedures for assigning costs. This consensus is difficult to achieve, however, even in a state with only a few public institutions of higher education, and the costs

of securing the needed data increase dramatically with the level of detail and sophistication of the cost accounting system. Even small technical adjustments in cost accounting procedures can have substantial financial implications, particularly for large systems. (For a thorough analysis of the methods and costs involved in implementing cost-of-instruction systems, see the Commission's report, Determining the Cost of Instruction in California Public Higher Education, Commission Report 80-13, 1980.)

As currently practiced, the cost-of-instruction method is really a variety of different methods. The share of instructional costs that students pay almost always differs between resident and non-resident students. Commonly it also differs by type of institution, such as university versus community college, and often for students at different levels, such as undergraduate versus graduate students. When Florida first instituted its cost-of-instruction system, it computed general instructional costs for five different student levels: (1) lower division undergraduate, (2) upper division undergraduate, (3) graduate level prior to thesis or dissertation, (4) thesis or dissertation stage, and (5) professional. For resident students in its four-year institutions, Florida proposed to set tuition charges at 30 percent of the cost of instruction at each student level the first year, but the cost and complexity of maintaining and updating this multi-level system was so great that it was never fully implemented or updated. Most other states use fewer student levels in their computations and set tuition or fees in their four-year institutions at 20-30 percent of cost, at least for undergraduates.

The state of Washington, which has one of the more careful and elaborate procedures for determining costs, has changed its approach frequently in recent years. The original proposal was to set community college student charges at 16.7 percent of instructional costs at two-year colleges, state college student charges at 20 percent of state college instructional costs, and university student charges at 25 percent of instructional costs at its two state universities. After modification by the Legislature, fees at the two state universities were set at approximately 25 percent of their cost of instruction for undergraduates, those at the state colleges were set at 80 percent of the university level, and those at the community colleges were set at 45 percent of the university level. In 1981-82, Washington's assessment method changed again, with university resident undergraduates charged 25 percent of the cost of university instruction, state college undergraduates charged 75 percent of the university charges (an amount that is slightly less than 20 percent of state college instructional costs), and community college students charged 18 percent of community college instructional costs. Washington, like most of the other states using the cost-of-instruction method, uses it to set undergraduate

tuition. Other required fees for such things as student services are often set by other methods, and almost all states using the cost-of-instruction method to set tuition make some provision for the schools themselves to set their own student activity fees, although maximum limits are often established.

Some states attempt to establish a connection between tuition or fee charges and educational costs without making a rigorous analysis of the cost of instruction. Such efforts normally involve an attempt to separate direct and indirect instructional costs from other expenses, but not always. Occasionally, they involve little more than dividing total institutional appropriations by total full-time-equivalent enrollments.

Virginia and Minnesota took a similar approach to setting the percentage of educational costs to be paid by students in public institutions, but theirs lack the precision of Washington, Colorado, and only Virginia fully implemented the "fair share" approach. In 1976, the Virginia General Assembly adopted their "70/30 Plan" which set as a goal that about 30 percent of each institution's educational and general (E&G) costs would be paid by students. The plan was designed to narrow the disparity among institutions in the share of E&G expenses paid by students and the share paid by the public. In the interest of equity, the new plan was phased in over a six-year period and the 30 percent share was reduced to 25 percent at four-year institutions in 1982. An "80/20 Plan" was implemented for the State's Community Colleges as well.

In Minnesota, the Higher Education Coordinating Board approved a similar proposal in 1978 to narrow the differences in the percentage of the cost of instruction students pay at the state's different kinds of public institutions--the University of Minnesota, the State University System, the Community College System, and Area Vocational Technical Institutes. By the end of the 1979-81 biennium, tuition revenue in any of Minnesota's institutions was to cover not less than 25 percent nor more than 30 percent of instructional costs. Had the proposal been implemented, tuition charges at these institutions would continue to vary, of course, because instructional costs vary among types of institution, but the percentage of the costs of instruction that students would be expected to pay and the percentage that Minnesota taxpayers were expected to subsidize would be more equitably distributed among students, institutions, and taxpayers.

A cost-of-instruction policy theoretically could assess each student's charges by calculating the actual costs of his or her education depending on particular courses and majors; but this would be both expensive and impractical. As a result, separate tuition charges for each student by student major have rarely been con-

sidered seriously. Moreover, a cost-of-instruction approach based on the student's major or field of study has other deficiencies. First, no clear-cut relationship exists between costs of instruction in a discipline and the future earnings of its graduates. As a result, the adoption of a cost-of-instruction method based on each student's major would discriminate against students who choose careers which offer low financial rewards, such as teaching, the ministry, or homemaking. Such a system would tend to discourage students from enrolling in high-cost fields of instruction unless they were likely to be guaranteed large monetary gains from doing so. (Nursing provides an excellent example of a high-cost instructional program whose graduates do not receive high wages.) As such, this particular approach to cost-of-instruction fees, if implemented at either the undergraduate or graduate level, would divorce the determination of student charges from decisions about society's needs and State goals and objectives for public higher education.

In summary, the cost-of-instruction method of determining student charges can be fairly objective, but determining the percentage of those costs that students should pay is inherently arbitrary. One of the method's main virtues is that it relates student charges to one of the major individual benefits students receive from higher education--instruction. Generally, the cost-of-instruction method is based on the premise that the cost of providing postsecondary education should be shared in an equitable manner by all students through tuition and by the State through direct institutional subsidies and financial aid. When states set fees by employing different proportions of the cost of instruction in different segments, as Washington does, the effect is to alter the basic concept behind the cost-of-instruction method, often in response to historic or traditional segmental differentials that bear little relationship to instructional costs. While such variations are understandable, it is important to recognize that they implicitly reflect the idea of differential subsidies for students that often bear little relationship either to ability to pay or to instructional costs.

Some have argued that basing charges on an arbitrary percentage of an ever-increasing cost does not adequately consider the ability of students and their families to pay. Yet, unless costs increase at a rate which exceeds inflation and income growth or major changes occur in student financial aid programs, the relationship between cost-based fees and students' ability to pay would remain constant over time. Others claim that this method pits students against faculty by appearing to tie faculty salary increases to increases in student charges. While this claim is overly simplified, both it and the former argument illustrate potential problems of the cost-of-instruction method. There is also the question of timeliness

and expense: How often should costs be recomputed and in what manner? In states with large numbers of public institutions, such as California, the task of developing suitable accounting procedures and securing agreement on the assignment of costs would be formidable, to say the least. In Florida, the elaborate cost-of-instruction computations for five different student levels proved time consuming and expensive to update, and so no adjustments were made for several years after the system was adopted. Florida is now examining alternatives to the cost-of-instruction method; and Illinois, a former cost-of-instruction state, has switched to a fee adjustment indexed to inflationary changes in higher education prices. Although it is being used by more and more states, the cost-of-instruction method thus seems to work best in those states with a moderate number of public postsecondary institutions.

BASING CHARGES ON STUDENT LEVEL

This approach might be considered a variation of the cost-of-instruction method, but not all the states that employ it make careful cost calculations. The assumption underlying the approach is that since the cost of educating students varies considerably with their academic level, the amount they pay should reflect this difference. This does not mean that the students' share of instruction costs--the percentage of costs they are expected to pay--should increase depending on their level. It does mean that as instructional costs increase with levels, the amount that students at advanced levels pay should increase. The Carnegie Commission aptly summarized the rationale for this method when it stated, "We believe that tuition should be more nearly proportional to costs, rather than regressive against students at the lower levels" (1973, p. 12). Other proponents of the method argue that keeping charges lower during the first two years of college facilitates access to postsecondary education because it minimizes some of the financial risks until students can more accurately assess the likelihood of their successfully completing a degree.

New York State used to require students at the same level to pay approximately the same charges whether they attended a two- or four-year institution. In 1979-80, New York eliminated its lower-division/upper-division/graduate differential at four-year institutions, and since then community college charges have been lower than the four-year college undergraduate charges.

In Michigan, upper division undergraduates are expected to pay $204 (or 11.6 percent) more a year than lower division students, while graduate students pay $672 (or 34 percent) more than upper division

students. At the University of Illinois, the lower division/upper division differential and the upper division/graduate differential are both $50 (or about 5 percent). Several other states which had similar differentials at the undergraduate level have discontinued the practice because of difficulties in administering such a highly differentiated system of charges.

Less than half of the states, California among them, have some differential in the charges paid by undergraduate and graduate students. In most of these states, however, the difference is nominal and is not based on computed differences in the cost of instruction.

Some states also distinguish between graduate and professional programs and assess different charges for students in academic master's or doctoral programs than for those in medical, dental, or law school. Florida, for example, distinguishes among three different types of graduate-level students and calculates costs and charges accordingly. In Washington, graduate students are charged 20 percent more than undergraduates, while professional students are charged 100 percent more than undergraduates. In 1981-82, at the University of Wisconsin at Madison, undergraduates were charged $985, graduate students $1,370, and medical students $4,602. On the other hand, in California, graduate students in master's degree programs of the State University are charged the same amount as undergraduates. Graduate students at the University are charged $60 or 5 percent a year more than undergraduates, whether they are working toward a master's degree, a Ph.D., an M.D., or a J.D.

The Carnegie Commission recommended that tuition and fees be determined separately for four different levels of student: (1) the associate degree, (2) bachelor's and master's degrees, (3) the Ph.D. degree, and (4) other advanced professional degrees. Whether this or some other breakdown is used, and whether charges are based on the cost of instruction at each level or on a standard ratio, this approach has some advantages over a mechanical, budget-based, institution-wide, cost-of-instruction approach. Most notably, it more strongly reflects conscious policy decisions about the goals and educational priorities of a state.

BASING CHARGES ON COMPARISONS WITH SIMILAR INSTITUTIONS ELSEWHERE

Student charges in public postsecondary education vary widely by state and by type of institution, but in general, the level of student charges in the public sector varies with the proportion of

students enrolled in the private sector. Thus, except for Massachusetts and the District of Columbia, public tuition and fees are consistently higher in those states in which the private sector is relatively large and lower in those states in which it is relatively small. This fact may reflect the effect of prices at public institutions on the public-private enrollment mix; it may instead reflect the effect of a large private sector on the process by which public tuition is set; or it may result from a combination of both factors. In any event, the order in which a state's institutions of higher education developed, and the state's traditions and goals are important determinants not only of its public educational offerings but also of its student-charge levels.

Various sources such as the September 2, 1981, and August 4, 1982, issues of The Chronicle of Higher Education and the College Scholarship Service's Student Expenses at Postsecondary Institutions, 1982-83, provide useful starting points for national and state comparisons of student charges. But national averages or even averages for each state serve little purpose in determining what student charges should be or how they might be set. Instead, a list of comparison institutions such as that used in the Commission's annual report on faculty salaries may provide a more appropriate basis for comparing student charges in California institutions with those at similar colleges and universities elsewhere. The results for the University of California's four public comparison institutions are presented in Table 9. Those for the California State University's 18 public comparison institutions are in Table 10.

University of California Comparison Institutions

As Table 9 shows, in 1982-83, three of the University's four public comparison institutions had resident undergraduate student charges that were higher than the average at the University's nine campuses. The fourth--the University of Wisconsin-Madison--had charges that were slightly less than the University's for resident undergraduates. For nonresident undergraduates, only the University of Michigan at Ann Arbor had charges that were higher than those at the University of California, and only the University of Wisconsin-Madison among the remaining three was close. The average student charges for resident undergraduates at the University were only 5 percent lower than the median for the four comparison institutions, while those for nonresident undergraduates were 24 percent higher.

At the graduate level, all the University's comparison institutions charged residents higher tuition and fees than did the University. In fact, the average resident graduate charge at the comparison institutions was 59 percent above that of the University and the

TABLE 9 Tuition and Fees at the University of California and its Public Comparison Institutions by Student Level and Residency Status, 1982-83

Institution	Undergraduate Resident	Tuition and Fees Nonresident	Graduate Resident	Tuition and Fees Nonresident
SUNY-Buffalo	$1,229	$1,929	$1,849	$2,434
UI-Urbana/Champaign	1,302	3,102	1,484	3,648
UM-Ann Arbor	2,144	6,014	2,966	6,310
UW-Madison	1,122	3,900	1,568	4,695
UC-Berkeley	1,174	4,324	1,234	4,384
Average for Comparison Institutions	1,449	3,736	1,967	4,272
Median for Comparison Institutions	1,266	3,501	1,708	4,172
Average for Nine UC Campuses	1,194	4,344	1,240	4,390

Source: State of Washington Council for Postsecondary Education, 1982.

median was 38 percent above the University average. For nonresident graduate students, however, the situation was somewhat different, with only Michigan and Wisconsin having higher charges and with the average for the comparison institutions 4 percent below that of the University's nine campuses. University of California charges for resident graduate students were 26 percent lower than the median for its comparison institutions, while those for nonresident graduate students were 5 percent higher.

California State University Comparison Institutions

Table 10 reveals that there is a much greater disparity between the student charges at the 19 campuses of the State University and its 18 public comparison institutions than between the University and

TABLE 10 Tuition and Required Fees at the California State University and its Public Comparison Institutions, 1982-83

University or College	Undergraduate Resident	Tuition and Fees Nonresident	Graduate Resident	Tuition and Fees Nonresident
Bowling Green State University	$1,614	$3,504	$2,090	$3,980
Illinois State University	1,859	3,718	1,103	2,412
Indiana State University	1,275	3,030	1,164	2,628
Iowa State University	1,040	2,580	1,200	2,800
Miami University (Ohio)	2,090	4,090	2,240	4,240
Northern Illinois University	1,114	2,674	1,138	2,746
Portland State University	1,356	3,981	2,019	3,267
Southern Illinois University	1,210	2,830	1,025	2,374
SUNY at Albany	1,152	1,852	1,725	2,210
SUNY College at Buffalo	1,153	1,853	1,725	2,210
University of Colorado	1,222	4,731	1,291	4,675
University of Hawaii-Manoa	480	1,155	582	1,407
University of Nevada-Reno	930	2,930	620	2,620
University of Oregon	1,380	4,005	2,043	3,291
University of Wisconsin-Milwaukee	1,155	3,933	1,601	4,728
Virginia Polytechnic Institute and State University	1,281	2,526	1,422	1,557
Wayne State University	1,910	4,220	1,720	3,640
Western Michigan University	1,453	3,406	1,428	3,366
Average for Comparison Institutions	1,315	3,168	1,452	3,008
Average for the 19 California State University Campuses	441	3,591	441	3,591

Source: California Postsecondary Education Commission, October 1982.

its 4 comparison universities. The least expensive of the 18 institutions charges resident undergraduates 9 percent more than the average State University campus; the next least expensive comparison institution charges twice as much as the most expensive State University campus; and the 16 charge resident undergraduates anywhere from two to nearly five times as much.

The average resident graduate student at the State University's public comparison institutions is charged $1,452 compared to an average of $441 at the State University. Six of these comparison institutions charge resident graduate students less than resident undergraduates, although the University of Nevada and perhaps several of the other five charge graduate students the same per unit as undergraduates but graduate students take fewer units on average than undergraduates. Moreover, 12 of the 18 comparison institutions have some kind of graduate-undergraduate fee differential, and the average is 10.4 percent. For both undergraduate and graduate nonresident students at the State University, the total tuition and required fees are greater than they are for the average State University comparison institution. The State University charges all nonresident students $3,427, while the comparison institutions charge nonresident undergraduates an average of $3,168 and nonresident graduate students an average of $3,008.

California Community Colleges' Comparison States

The California Community Colleges also stand out as exceptions. Table 3 summarizes the average student charges in selected states' community colleges, although there is often considerable local variations within each state. The figures for Colorado, Florida, Oregon, and Washington are particularly interesting because each of these states attempts to base student charges on a predetermined percentage of the actual costs of instruction. The method of computation varies, as does the percentage of instructional costs students are expected to pay, but in most cases the average charge in these four states was approximately $519 in 1981-82 and $542 in 1982-83. No state, aside from California, provides free community college education to its residents.

Clearly, it is in the Community Colleges and the State University that California's pattern of resident undergraduate student charges differs most markedly from that of other states although the absence of a graduate differential in the State University and the small size of the differential in the University also stand out. Table 11 provides a convenient summary of these differences for states that contain University and/or State University comparison institutions or that are included in the community college list in Table 10. The figures express the average student charges at

TABLE 11 Average Resident and Nonresident Student Charges For Community Colleges in Selected States, 1981-82 and 1982-83

State	Residents 1981-82	Residents 1982-83	Nonresidents 1981-82	Nonresidents 1982-83
Arizona	$244	$298	$2,265	$2,510
CALIFORNIA	-0-	-0-	1,500	2,200
Colorado	636	636*	2,184	2,184*
Florida	462	506	924	1,102
Illinois	491	549	2,243	2,512
Michigan	624	740	935	1,490
New York	930	1,075	1,774	2,075
Oregon	508	540	2,085	2,232
Texas	260	260*	540	540*
Washington	471	519	1,830	2,037

Source: State of Washington Council for Postsecondary Education, 1982.

*1981-82 Tuition and Fee averages are the only ones available.

TABLE 12 Average Student Charges by Segment as a Percentage of University Charges, 1982-83

State	Community Colleges Amount	Community Colleges Percent	State Colleges Amount	State Colleges Percent	University Amount
Arizona	$298	42%	$ 710	100%	$ 710
CALIFORNIA	40	3	441	37	1,194
Colorado	636*	57	787*	71	1,111*
Florida	506	64	795	100	795
Illinois	549	42	1,074	82	1,302
Indiana	1,010	76	1,275	96	1,328
Iowa	639	61	990	95	1,040
Michigan	740	34	1,359	63	2,144
Minnesota	821	51	974	60	1,617
New York	1,075	87	1,138	92	1,229
Ohio	868	60	1,468	101	1,458
Texas	260*	58	397*	88	452*
Virginia	558	41	1,315	97	1,350
Washington	519	44	942	80	1,176
Wisconsin	927	83	1,014	90	1,122

Source: Computations based on figures on student charges from State of Washington Council for Postsecondary Education, 1982.

*1981-82 Tuition and Fee averages are the only ones available for Community Colleges, so 1981-82 figures are used for the other segments for purposes of comparison.

community colleges and state colleges for resident undergraduates as a percentage of the average charges for these same students at a state's major university campus or campuses. The figures are based on total tuition and required fees charges to resident undergraduates in 1982-83.

Table 12 reveals that it is usually less expensive to attend a state college than the corresponding major state university. The difference is commonly quite small, however. Indeed, nowhere else is the cost differential for resident undergraduates between a state college system and a university system as great as it is in California. Of course, the presence of a tuition free Community College system in California is a factor which contributes to this anomaly since State University campuses are the primary transfer points for the modest portion of Community College students who actually transfer. In most other states, average resident undergraduate student charges in the community colleges are about 50 to 60 percent of those at the major state university.

This latter point is quite revealing because it illustrates some of the disadvantages of the comparison method. While the method can determine whether differences exist between California and other states with respect to student charges, it can neither explain why these differences exist nor determine whether they should continue. In short, the comparison method can help to determine what other states are doing and provide a context for assessing the similarities and differences between California and the rest of the country, but it cannot determine whether California could achieve its educational objectives by imitating the rest of the nation.

BASING COMMUNITY COLLEGE CHARGES ON THE DISTINCTION BETWEEN CREDIT AND NONCREDIT COURSES

Charging students for noncredit continuing education courses in the Community Colleges while maintaining a no-, low-, or some other fee policy for college transfer and vocational-training programs is another possibility. Community service courses in California are already required to be self-supporting, although until the passage of Proposition 13 they were partially subsidized by permissive community service tax overrides in some Community College districts, and they continue to be partially subsidized in others through the use of district reserves. The switch making community service courses entirely self-supporting has already occurred in many districts and places them on much the same funding basis as extension courses in the University and State University. In the Community Colleges, however, the distinctions among credit, non-

credit, transfer, vocational, remedial, adult basic, and community service courses remained blurred and are only now being sorted out with the assistance of a new Course Classification System. Furthermore, some districts such as San Francisco, San Diego, and North Orange have exclusive jurisdiction over all adult education courses, while in most other districts the K-12 system offers all such courses. Currently noncredit courses in Community College districts are funded at a lower rate than regular program offerings. Courses in such areas as adult basic education, English-as-a-second language, citizenship, apprenticeship, short-term vocational, health and safety, home economics, education for the substantially handicapped, parenting, and educational programs for older adults are funded at the new rate in these districts; any other noncredit courses are supposed to be self-supporting. Some districts offer similar courses for credit and receive funding at the full rate, others receive funding at the lower noncredit rate, still others have noncredit courses that are fully fee supported, and some may try to switch some of the low-or no-funded courses to other classifications. Perhaps the new Course Classification System will enable the State to arrive at a more coherent, consistent funding pattern for Community Colleges and the $30 million reduction in State apportionments for recreational and vocational courses represents a step in that direction, but until that process is completed the current system perpetuates serious inequities among districts that bear little relationship to fundamental differences in actual program offerings. Further, the current funding pattern for the Community Colleges is just now being shaped by a reexamination of overall state priorities.

BASING STUDENT CHARGES ON THE FUTURE EARNINGS OF THE STUDENT

If the rationale for a tuition policy is based in large part on the future earnings prospects of college graduates, it might also appear desirable to establish differential charges that recognize differences in future earnings. To be implemented, this method would first require an elaborate compilation of the future earnings potential of a wide variety of occupations. While such an approach might seem more equitable in theory than the flat-rate approaches mentioned earlier, it has serious shortcomings:

- First and most fundamental, it is impossible to link specific majors with specific occupations.
- Second, it is impossible to forecast accurately the earnings potential of the staggering array of occupations that make up the modern economy.

- Third, even if the future earnings of a wide variety of occupations could be forecast correctly, this method divorces what a student is asked to pay from when he or she is able to pay by assuming that those who will eventually make high average salaries can afford to pay higher charges while they are still students.

- Fourth, basing current charges on students' future earnings potential ignores the fact that many students do not decide on a major until late in their undergraduate years and that there is often little relationship between a student's major, his or her future career, or his or her future earnings. For example, business majors with a baccalaureate degree in 1982 received an average starting salary of $17,800 per year while those with an economics major received an average of $16,600 (College Placement Council, 1982). However, if a business major and an economics major both took accounting jobs, they would receive, on average, nearly identical starting salaries. Humanities majors, on the other hand, received starting salaries in 1982 that averaged $3,600 per year less than the average business major, but those humanities graduates who accepted accounting jobs earned slightly more than accounting majors in similar positions. Which of these earnings patterns provides the appropriate basis for setting fees? At the graduate and professional level, as well, students may end up pursuing careers that are quite different from their graduate fields of study. For example, less than 50 percent of law school graduates actually practice law.

- Fifth and finally, this method typically uses average salaries for its comparisons and thus ignores important internal variations in the earnings of people within the same occupation or profession. Indeed, this approach to setting fees is more rather than less complicated at the graduate and professional levels than it is at the undergraduate level. It is widely assumed that graduate instruction, unlike undergraduate education, generally provides specialized knowledge and skills which are more likely to translate into a higher income for the student than the knowledge acquired as an undergraduate. Not only does the presumed income-enhancing value of graduate education vary widely by discipline, but also simple comparisons of salary differences can be quite misleading.

Today the extent to which a college education insures higher future earnings is being debated. College graduates in a number of occupations apparently earn less than some unionized workers in industry and in certain skilled trades though such comparisons all too often focus on hourly earnings and thus ignore the differential impact of unemployment on annual income levels. Other college graduates earn more than most nongraduates, but the rate of return on an investment in graduate education is often quite low in strict-

ly financial terms. In a number of fields, higher charges might threaten the supply of needed personnel when a graduate degree does not confer any real promise of increased future earnings. Furthermore, if a state wants to try to recapture some of the added costs of providing college instruction by a method that accurately reflects the actual increased earnings of many of its graduates, then the graduated income tax system may be a fairer way to achieve this goal. Furthermore, the graduated income tax, unlike a system of sharply graduated tuition or fees, would not penalize those students who majored in subjects that led to less remunerative, yet socially desirable careers in what for most others are higher paying occupations or professions. It would also be less likely to divert professional school students away from lower-paying specialties or residencies, like family practice medicine. Moreover, it relates what is charged more closely with the ability to pay than do student charges based on as yet unrealized future earnings.

BASING STUDENT CHARGES ON THE ANTICIPATED DEFICITS IN SEGMENTAL BUDGETS

This approach is sometimes used in California and more frequently in other states. It means that students pay the difference, or some portion of the difference, between the amount the Governor, the Legislature, and the governing boards believe is required and the level of support the State can provide. This is sometimes justified in an emergency, such as the current-year budget reductions directed by the Governor in October 1981, which resulted in one-time fee surcharges. It is the approach which allows maximum flexibility to the State and to the governing boards. However, it offers no rational or predictable basis for the actual levels of student charges and no substantive basis for the establishment of those levels.

A special task force for the State University Chancellor's Office recently recommended basing a new emergency fee on the anticipated revenue gap for the 1982-83 budget year which they defined as "the difference between a desired or program maintenance level of support and the state appropriations." The task force argued that this "approach accurately presents the policy question of the proper balance between state appropriations and student fees," but it could also present an open invitation to the State to change the balance whenever it is pressed for funds. Moreover, in both the short and long run, this approach establishes an unhealthy precedent by divorcing student charges from either the quality of instruction and services offered or their cost. An increase in student charges

to offset State budget reductions would, in effect, "tax" students for General Fund revenue by indirectly forcing the imposition of a higher charge to compensate for the lower State appropriations. Moreover, if the increased charges did not cover the entire reduction, student charges would be increased at the very time that the educational services the students paid for were cut.

On a closely related point, uniform percentage cuts in segmental budgets may further exacerbate existing differences in the level of student charges among students and segments. This occurs because budget cuts may be, in part or in whole, passed on to students in the form of higher student charges, and the number of students who would pay the higher charges varies tremendously among the public segments. Over the past three years, following this fee setting procedure has only served to widen the gap in student charges between segments without any apparent policy rationale.

CHAPTER FOUR

ESTIMATING THE IMPACT OF STUDENT CHARGES ON STUDENTS AND INSTITUTIONS

Any satisfactory answer to the question of increasing student charges requires a careful assessment of the impact such changes may have on both students and institutions. This raises a whole host of additional questions:

What level of student charges is most reasonable? What method should be used to determine the new charges?

What impact would different fee levels have on student participation rates and on the access of various minority and low-income groups to public postsecondary education?

How would an increase in student charges affect full-time students? Part-time students? Undergraduates? Graduate students? Professional school students?

How would different fee levels affect the distribution of enrollments among the public segments or between the public and independent segments?

What provisions would need to be made to increase financial aid?

What existing sources of additional aid would be available and what new sources of aid would be needed? How might existing aid programs need to be modified?

How large an enrollment drop would be likely if new charges were imposed and additional aid were not made available? What would happen to enrollment if new aid funds were supplied? And what would the net tuition and fee revenues be under both scenarios?

Would all or part of the additional revenue be used as an offset to General Fund appropriations? What would be the likely enrollment-related budget reductions? What kinds of faculty reductions might such budget losses entail?

In sum, what would be the implications of adopting any of the alternative methods for setting fees and providing aid?

What follows is a brief, nontechnical review of evidence about the impact of price and other variables on the demand for higher educa-

tion. The discussion attempts to convey the strengths and limitations of the data and methods used in these quite complex studies, summarize their major findings, and then identify the critical variables affecting enrollment, financial aid needs, and State and segmental revenues.

STUDIES OF THE IMPACT OF PRICE ON ENROLLMENT

Most of the studies that examine the effects of price on student enrollment decisions follow the standard econometric practice of attempting to determine the reasons why students decide to enroll where they do by studying whether and where they actually enroll.

A report by Richard Ostheimer in 1953 for the Commission on Financing Higher Education contained what was probably the first econometric study of the demand for higher education. The study estimated the effect on college enrollment of tuition, family income, educational background, and the proximity of colleges and universities--all variables that have long been identified with the propensity of students to attend college. Most of the early work on enrollment demand was based on aggregate enrollment data collected by the federal government. These early studies usually examined either enrollment variations across states in a single year or for the country as a whole over time. It was assumed that statistical correlations would show how the average student would respond to a change in tuition or fees.

In recent years, the focus has shifted from aggregate data to individual student data, and the studies have become more sophisticated. These include a nationwide study of access by John Bishop (1975), and several studies by Stephen Hoenack which focused on enrollment demand at certain public institutions (1967; 1975). The primary emphasis was still on the effect of price on a student's decision whether to attend college or not. Although relying on individual student data, the focus of these studies was still on access, not on which institutions students chose to attend and why.

Two well-known studies completed in 1974 investigated the question of student choice using the same kinds of data. The first of these was Roy Radner and Leonard Miller's study for the Carnegie Commission, Demand and Supply in U.S. Higher Education. The second was the study by Meir G. Kohn, Charles F. Manski, and David S. Mundel for the Rand Corporation with the forbidding title, "An Empirical Investigation of the Factors Which Influence College Going Behavior."

The basic methodology in these studies of student choice can be summarized as follows (McPherson, 1978, pp. 176-177):

> The studies first try to impute to each student in a sample of students a set of variable college-going alternatives, taking into account location, academic ability, and the like. They then gather information about the characteristics of the colleges available to the various students (their cost, selectivity, and so forth) and background characteristics of the students and their families. A statistical technique called conditional logit analysis is then used to infer how the characteristics of the colleges and the students interacted to produce the set of college choices the students actually made. In effect, the computer tries out alternative weighting schemes for the factors impinging on the decision process (cost, quality, family income), and selects the scheme that best accounts for the decisions the students made.

Although these particular theoretical models and others like Bishop and Van Dyk's (1977), which uses similar techniques to investigate the enrollment behavior of adults attending community colleges, provide the most complete picture yet of the student-choice process and have great promise, they also have certain shortcomings. The data demands are enormous and do not come near being met. The cost of a conditional logit computer run is much greater than the more widely used miltiple-regression technique. Finally, in order to make the computations manageable, numerous assumptions about the nature of the student-choice process must be introduced a priori. Of course, if the underlying assumptions are correct, and most seem plausible, such models can provide a remarkably comprehensive picture of student demand.

Before summarizing the findings of these studies, one final cautionary note is necessary. Student charges are only one of the factors that determine who goes to college, and they are by no means the most important. Studies that incorporate sociological, educational, and economic variables place the importance of cost varations in a somewhat different perspective. The intellectual ability of individuals, their socioeconomic characteristics (including parent income, neighborhood, ethnicity, the profile of one's peers and close friends, etc.), their schooling, and that of their parents, have stronger effects on the probability of attending college than costs or financial aid, but, of course, these variables are less easily altered by educators or legislators. Furthermore, the ability of educators to achieve educational or social goals through higher education is limited by the variables that they are able to influence.

FINDINGS OF EMPIRICAL STUDIES

The one universal finding from these studies is that price does affect access. Every study finds a significant, though small, negative relationship between the price faced by students and their probability of attending college. On the question of how much enrollment would increase if charges were lowered, or how much it would decline if they were raised, there is much less agreement. Moreover, the elasticity of demand is assumed to be symmetrical, but probably is not--slightly lower elasticities are likely when prices are raised than when they are lowered.

Translating the results of these demand studies into a common, comparable format requires standardizing the coefficients for average family income, the average cost of education, age-specific participation rates, and changes in the Consumer Price Index or some other measure of inflation. This was done in 1974 by Gregory Jackson and George Weathersby, who offered a "ballpark" estimate of a 2.5 percent change in enrollment for every $100 change in higher education prices. In the same year, Michael McPherson reformulated and revised Jackson and Weathersby's work. He concluded that a $100 change in tuition occurring at all colleges simultaneously would lead to about a 1.0 percentage-point change in the enrollment rate of 18- to 24-year olds. Since approximately one-third of this age groups was enrolled in postsecondary educational institutions nationally at that time, this was equivalent to a 3 percent change in enrollment and a tuition elasticity of -0.3. The conclusions of the two studies are actually quite similar. The 1 percentage point or 3 percent figure is widely accepted as the best estimate of the effect of a $100 decrease on public institution enrollments, although the estimate needs to be adjusted for inflation-induced changes since 1974 and transposed into the appropriate tuition elasticity before it is very useful.

Because of both its breadth and its simplicity, however, this generalization is somewhat misleading. It obscures important distinctions critical to any careful analysis. Clearly, the impact of price changes is not the same for all students at all institutions. First, as might be expected, one of the consistent findings in most studies is that individuals from low-income families are more affected by price changes than are individuals from high-income families although providing additional financial aid to lower-income students can help to partially offset these differences. Second, students of higher ability are less sensitive to changes in cost than other students. Third, the impact on enrollment of a $100 increase in costs at an inexpensive school is much greater than it is at a high-tuition institution. Stated differently, the price

response is different in independent institutions than in public ones, and it probably varies among public institutions as well. Fourth, price changes in public institutions, or in any group of institutions for that matter, could lead to enrollment shifts between institutions--between the public and independent sectors or between segments within the public sphere. All these variables need to be incorporated into any model that attempts to assess the impact of price changes on enrollment.

One additional dimension of these empirical studies of student price responsiveness requires further comment--the interaction between student charges and student financial aid. Most of the studies were either conducted prior to the vast expansion of federal and state financial aid programs or relied on data drawn from the pre-Pell Grant era prior to 1974. On the one hand, the absence of significant student financial aid programs in these studies means that the effects of older aid programs do not need to be factored out of the elasticity coefficients prior to considering the impact of the extensive modern aid programs on student price responsiveness. On the other hand, it means that the price elasticity coefficients reported in such studies are generally posted price elasticities and by themselves probably overstate the degree of student price responsiveness.

So far, this chapter has examined the impact of changes in posted price on student enrollment behavior, but at least two price systems in higher education affect student enrollment demand. The first one is the posted or full price--the student cost of attendance that every student faces initially. Many students, however, do not actually pay the full posted price because they receive financial aid; and the second one is the net price. As Augenblick and Hyde observe, "This revised price--cost of attendance minus student financial aid--is the net price and is the amount the student and family actually pay to attend . . . . The result is that the distribution of aid alters the price many students actually pay to attend" (1979, p. 13). Furthermore, it follows that in evaluating the likely impact of increased student charges on enrollment behavior, both posted price and net price must be considered.

Several studies suggest that the effectiveness of financial aid in offsetting posted price increases depends, in part, on the form of aid provided:

- Grant assistance seems to be the most effective in offsetting fee increases almost dollar for dollar for those students who are otherwise the most price responsive--those from low income families.

- Offers of work assistance, such as the College Work Study program, are somewhat less effective in offsetting price increases. Moreover, while one study suggests that work assistance is particularly effective in promoting persistence, the need to hold part-time jobs either on or off campus in order to help finance their educations can slow up students progress toward their degrees by forcing them to reduce their unit loads.

- Finally, offers of loans at below market interest rates have played an increasingly important role in financing the educations of middle and higher income undergraduates and most graduate and professional students, but they appear less effective in offsetting price increases than either grant or work aid for low-income students. There appear to be two primary reasons for this: (1) many low-income students, perhaps because they are often also high risk students, appear reluctant to assume a large debt burden to finance their educations, and (2) many banks appear reluctant to make loans to low-income students, especially those with little collateral and few assets.

In any event, both posted price and net price need to be considered in assessing the likley impact of increased student charges on student enrollment. In the past, most legislatures adopted the low- or no-tuition strategy as the best means of insuring access, but in recent years financial pressures and the rising public cost of providing quality higher education has led to a reappraisal of this strategy. In its report on Tuition Policy for the Eighties, the Southern Regional Education Board observed, "In an era when 'access' is a key concept in the assessment of adequacy in public higher education, it is commonplace to couple recommendations for increases in tuition levels with measures aimed at stepping up financial aid to offset the financial barrier of increased tuition" (1981, p. 11). Furthermore, in the search for alternative strategies to preserve both access and quality education in a period of constrained state revenues, more and more legislatures are coming reluctantly to agree with Michael McPherson's conclusion:

> In principle a cheaper way to maintain high college enrollment or to raise it is to target low tuition (or student aid) on those groups that are most sensitive to price in their enrollment decisions. The most readily identifiable group consists of low-income students . . . . This finding supports the general presumption that subsidies should be targeted on low-income students and specifically suggests that the policy in most states of using government funds to keep tuition low at public institutions is hard to defend on access grounds (McPherson, 1978, p. 182).

Whatever position one takes on this argument or the question of raising student charges, two points must be kept in mind. First, the available evidence suggests that it is the magnitude of the student charges, not the name attached to them or the purposes for which they will be used, that determines their likely impact on student enrollment behavior. Second, student price responsiveness to increases in student charges depends more on the magnitude of the net price increases after factoring out financial aid offsets than on the size of the increase in posted price.

CHAPTER FIVE

VERSION 4 OF THE STUDENT CHARGES MODEL

The Commission's student charges simulation model, now in its fourth version, seeks to project the enrollment and revenue effects of a wide range of possible changes in student fees and to assist State and institutional policy makers in answering questions such as these:

1. If revenue shortfalls are likely for the three public segments, what portion of the shortfall should be covered by program and budget reductions and what portion passed on to students in the form of higher fees?

2. What would the new fee levels be?

3. Under the provisions of existing student financial aid programs, what portion of the fee increases would be offset for needy students?

4. What would be the likely enrollment losses if only these forms of financial aid were available?

5. What levels of additional student aid beyond those supplied by existing programs would be required to ensure access to higher education?

Version 4 of the model, created in June 1982, differs from earlier versions in (1) utilizing Fall 1981 enrollment data, (2) updating income distribution data, (3) including recent administrative changes in the federal Pell Grant Program affecting eligibility and funding, and (4) refining procedures for estimating the number of Cal Grant recipients and other undergraduate and graduate students in each segment who would require additional financial aid if fees were raised. The first major section of this chapter describes all the major components of Version 4 and the assumptions underlying its estimation procedures. Later pages describe the revenue projections and financial aid projections that Version 4 can provide.

ENROLLMENT AND STUDENT AID COMPONENTS OF THE MODEL

The components of the student charges model can be divided into those that need to be considered in assessing enrollment and student

aid effects and others that are used to assess revenue effects. Twelve are used to assess enrollment and student aid effects, as follows:

1. Tuition Elasticity of Enrollment Demand

Evaluating the impact of different price levels on enrollments in different kinds of institutions depends on the use of a measure of student price responsiveness. Referred to as a "tuition elasticity coefficient," this measure is defined as the percent change in enrollment produced by a 1 percent change in net price. The model uses this concept to assess the enrollment impact of increased charges at the University of California and the California State University. (Because student charges in the California Community Colleges are essentially zero or near zero, and because the results of dividing any equation by zero are undefined, a different kind of equation was required for that segment. The distinctive nature of Community College students also suggested the need for a different approach which is discussed in Item 12 below.)*

2. Effects of Family Income on Tuition Elasticity

Almost every study examined in preparing The Price of Admission concluded that undergraduates' responsiveness to changes in student charges varied depending upon their family income level. (Graduate and professional students present special problems and are discussed in Item 5 below.) While not all studies agree on the exact magnitude of the variations among undergraduates, it appears that low-income undergraduates are approximately twice as price responsive as middle-income undergraduates, all other things being equal, and high-income undergraduates are about two-thirds as responsive as middle-income undergraduates. Therefore, the model

*For readers interested in the formulas used in the model, the tuition-elasticity concept is used for the University and the State University in an equation with the following format:

$$\Delta E_i = \alpha_i (\Delta C_i / C_i)(E_i)$$

where:

ΔE_i = The change in enrollment for a particular type of student for a given change in student charges for that type of student;

E_i = The current headcount enrollment for that type of student;

α_i = The coefficient of tuition elasticity for that type of student;

ΔC_i = The net increase in charges paid by that type of student; and

C_i = The current charges paid by that type of student.

utilizes the following coefficients of tuition elasticity for undergraduates:

TUITION ELASTICITY COEFFICIENTS BY INCOME LEVEL

Income Level	Coefficient
Low Income (Under $15,000)	-0.436
Middle Income ($15,000 - $29,999)	-0.218
High Income ($30,000 and above)	-0.146

3. Difference in Family Income by Segment

The model's data on family income are taken from the 1979 Student Expense and Resource Survey (SEARS) conducted by the California Student Aid Commission. These data represent a significant improvement over those from the two previous surveys. The sample sizes and the response rates for State University and Community College students increased appreciably over 1975 levels, although the response rate among part-time students in the Community Colleges was still somewhat lower than anticipated. Moreover, idiosyncracies in the income intervals used for dependent and independent student income made it necessary to rely on the family income distribution of dependent undergraduates as the best estimate available of overall undergraduate income distribution.

The 1979 SEARS income data were first incorporated into Version 2 of the model. When subsequent versions were created, however, these data were updated by adjusting for changes in the income of heads of households over 40 years of age as reported by the United States Census Bureau for California. Version 4 also replaced Fall 1980 enrollment data with Fall 1981 data. The table on the top of page 68 shows the current percentage distribution figures used in Version 4.

4. Effects of Academic Ability on Tuition Elasticity

Many of the studies of student enrollment behavior cite students' academic ability as one of the major determinants of their likelihood of enrolling and their likelihood of remaining enrolled in the face of subsequent fee increases. From an institutional or segmental standpoint, academic selectivity is the functional equivalent measure of the overall academic ability of its students and of their likely price responsiveness in the face of fee increases, other things being equal. The higher the ability of students, the greater the likelihood that they will enroll in a highly selective institution and the greater the likelihood that modest fee increases will not adversely affect their enrollment. Given the differential

PERCENTAGE DISTRIBUTION OF DEPENDENT UNDERGRADUATES
BY FAMILY INCOME LEVEL AND BY SEGMENT, 1981

Income Level	University	State University	Community Colleges
Low Income (Under $15,000)	13.0%	17.9%	37.6%
Middle Income ($15,000 - $29,999)	23.5	27.6	31.6
High Income ($30,000 and above)	63.5	54.5	30.8

Source: Student Expense and Resource Survey, California Student Aid Commission (December 1979). Computations were made from SEARS data tapes after selecting for federally defined dependent undergraduate students. Figures were then updated to 1981 using information reported by the United States Census Bureau for California heads of households over 40 years of age.

admissions requirements of California's public segments under the Master Plan, the University is likely to experience lower enrollment losses than the State University with comparable fee increases. Despite some uncertainty about the exact magnitude of the differences that ability differences may produce in elasticity coefficients, Version 4 of the model incorporates ability differentials for the first time based on the general level of academic selectivity in each public segment's admissions requirements. State University students are considered 10 percent less price responsive on average than Community College students, other things being equal, and University students are assumed to be 20 percent less price responsive.

5. Distinctions Among Lower Division, Upper Division, Graduate, and Professional Students

A major change in Version 1 of the model from the original noncomputerized version was the inclusion of distinctions based on student level. It was evident that graduate students could not be omitted from the model's enrollment, student aid, and revenue projections, despite the paucity of empirical data on their price responsiveness, income distribution, and financial aid needs.

Distinctions based on student level are important to assessments of the enrollment impact of higher charges on both students and institutions for several reasons. First, current fee levels may vary by student level, as they do between undergraduate and graduate students at the University. Second, some evidence suggests that upper division students are likely to be less price responsive than lower division students because they are normally in a better position to assess or weigh the financial risks against the likelihood of their successfully completing a degree, because upper division students have few lower cost alternatives, and because, in addition to the attachments that they have developed to their institutions transfer to another institution would entail delays in completing their degrees and thus increase costs, while dropping out altogether would involve the loss of their prior investment of time and money. Third, increasing selectivity in the admissions process between undergraduate and graduate or professional school is likely to reduce the overall price responsiveness of advanced students, since high-ability students in general are less price responsive than low-ability students.

The current version of the model includes differentials for lower division undergraduates; upper division undergraduates; master's degree students; Ph.D. degree students; health science professional degree students (those in medicine, dentistry, and veterinary medicine); and other professional degree students in the public four-year segments. The inclusion of graduate and professional students and the differentiation between lower and upper division undergraduates explicitly recognizes the possibility of different price increases for students at different academic levels and facilitates the simulation of the effects that such policies would have. Both across-the-board increases in student charges or any combination of differential increases by student level can be simulated by the model and the enrollment, student financial aid, and revenue implications assessed for each group and option.

6. Distinction Between Resident and Nonresident Students in the University and State University

The enrollment effects of increased charges are likely to be different for resident than for nonresident (out-of-state) students for at least four reasons: (1) nonresident students currently pay much higher fees than residents; (2) the income distribution of the two groups differs; (3) their eligibility for federal financial aid programs varies; and (4) the restriction of eligibility for State student aid programs to State residents makes the net price effects of fee increases quite different. Although not all these factors operate in the same direction, the differential enrollment responses of resident and nonresident students could have a significant impact on the diversity of the student body at some institutions by altering the proportions of resident and nonresident students.

The University of California and the California State University charge nonresident students the same fees as California students plus a nonresident tuition. The University raised nonresident tuition from $2,400 per year for 1980-81 to $2,880 for 1981-82. The State University raised it from $2,160 to $2,835. In 1982-83, nonresident tuition will be $3,150 in both segments, although the required fees in each will continue to vary widely. Any future increase in charges for resident students would be added to any new increases adopted for nonresident students. Consequently, since both the current charge and the size of any future increase would vary between resident and nonresident students, the enrollment effects of such a change would also vary. The model projects these effects for both undergraduate and graduate students.

7. Distinctions Between Full-Time and Part-Time Students for Fee Purposes

The model continues to recognize the existing differences in the credit-load distribution of students in the three different segments. As noted in The Price of Admission and every subsequent update, the model assumes that any increase in student charges in the University will apply to both full-time and part-time students. Until Version 4, the model assumed that any increase in State University fees would reflect the existing part-time differential in student charges. In other words, earlier versions assumed that State University students taking less than six units would face fee increases that were approximately 80 percent of what students taking six or more units would be charged. The current part-time differential in the State University's Student Services Fee will be ended in 1982-83, however, although the Chancellor's Task Force on "A New Student Fee and Financial Aid Program" proposed that any new "Emergency Fee" be differentiated on the basis of students taking less than six units and those taking more.

In the event that Community Colleges charge fees in the future, they will almost certainly introduce some differential in the new fees to recognize the large number of part-time students they currently enroll. Version 4 assumes that Community College students taking less than six units would be charged 60 percent of what those taking six or more units are charged. It rejects the idea of a per-unit fee because of the experience of Florida, Nevada, and other states where such a charge not only created a disincentive for taking more units, but encouraged students to adjust to higher fees by taking fewer units, led to substantial FTE losses, and increased administrative costs associated with fee collection, refunds, and financial aid.

Version 4 starts with certain assumptions about fee differentials for extreme part-time students, but it now permits users to override the default values (100, 100, and 60 percent, respectively) and to specify the magnitude of the differential they want to simulate for students enrolled for less than six units per term. Furthermore, the net price increase faced by undergraduates in all three segments also depends on differences in aid eligibility between full-time and part-time students.

8. Eligibility for Federal Student Financial Aid

Eligibility for federal financial aid programs is related closely to income levels (family income for dependent students and personal income for independent students) and generally restricted to students enrolled for at least a half-time load. For institutions or segments, the proportion of undergraduates eligible for Pell Grants and the amount of federal financial aid funds that will be available to offset partially any fee increase depends upon the income distribution of their students and their credit-load patterns.

Prior to the passage of the Middle Income Student Assistance Act (MISAA) in 1978-79, for example, it was rare for a dependent, full-time undergraduate from a family of four to receive a Pell Grant if his or her parents' adjusted gross income exceeded $15,000. In 1979-80, under the provisions of MISAA, a full-time undergraduate from a family of four with an adjusted gross income of up to $25,000 could be eligible for at least a minimum grant. Subsequent adjustments raised the ceiling to approximately $27,000 in 1980-81 and then downward to $25,000 in 1981-82. Recent administrative changes in program guidelines have the effect of "repealing" the MISAA and dropping the implicit income ceiling for 1982-83 back down to approximately $19,500--a $5,500 drop in actual dollars in one year for eligibility and a drop in constant dollars to a ceiling that is at least 10 percent below the 1978-79 level.

Even at peak funding levels, however, the situation was different for part-time undergraduates from these same income groups than for full-time undergraduates. First, those students taking fewer than six units per term are not eligible for financial aid no matter how low their family or personal income. Second, although those taking from six to eleven units are eligible in theory for a fraction of what full-time students with comparable family incomes receive (since part-time students theoretically can contribute more toward the cost of their educations through part-time employment), in practice the number of part-time undergraduates receiving any Pell Grant funds has been quite limited, as has the percentage even applying for them.

If undergraduate student charges were increased, the additional financial need created would be offset only partially by an increase in Pell Grant funds. Indeed, even under optimum conditions with no further cuts by the Reagan Administration, the State could not expect that any more than one-half of the additional financial need of full-time undergraduates from low-income families would be offset by Pell Grant monies, and even then this offset would apply only to those students who were not already receiving the maximum grant. Until 1982-83, most full-time undergraduates from middle-income families with incomes below $25,000 were eligible to receive at least a minimum grant, but most of these same students' grants did not increase at all even when student charges increased dramatically. In 1982-83, many of these students will no longer be eligible for Pell Grants and the rest will not see their grants increase when educational costs increase. Moreover, most part-time undergraduates, regardless of their families' incomes, could not count on much, if any, additional financial aid from federal grant programs.

Graduate students could not count on any automatic increases in financial support from the federal government. No federal programs comparable to the Pell Grant entitlement program exist that would provide additional financial assistance to graduate and professional students in the event that fees are increased. Furthermore, the Reagan Administration has made major cuts in most federal research grant programs, such as that of the National Science Foundation. Not only do such cuts sharply decrease the amount of extramural funding available for research at the University of California and other major universities, they also reduce one of the major sources of funds for graduate student fellowships and research assistantships. Further, the Administration has proposed to eliminate graduate students from eligibility for the below-market-rate loans through the Guaranteed Student Loan (GSL) program.

Clearly, the continually changing eligibility requirements for federal undergraduate grant and loan programs and graduate loan programs could have a major effect on the ability of students and their families to finance their educations. Yet, for the shrinking number of undergraduates who remain eligible for Pell Grants, that eligibility in effect still partially offsets the impact of increases in student charges. Furthermore, for many undergraduates who will lose eligibility for federal aid and for graduate students who may lose the right to borrow under the GSL program, there was a significant increase in the cost of education in 1982-83 in addition to scheduled fee increases.

The student charges model is designed to take these grant eligibility factors into consideration in determining the amount of addi-

tional financial aid that would be generated automatically by existing programs to partially offset the cost increases that different kinds of undergraduate and graduate students would face if charges were raised. To do so, Version 4 incorporates the financial aid offsets that the Pell Grant program provides to eligible undergraduates, computes the net price increase that students at each of 34 income levels would face, factors in an inflation adjustment to account for income growth between the current academic year and the next academic year, and then calculates the enrollment losses that might occur if no additional financial aid increases beyond those of the Pell Grant program were provided.

9. Adjustments for the Effects of Inflation

To allow for the impact of inflation on family income growth and the magnitude of student charge increases, an inflation adjustment was introduced into the model beginning with Version 2. The concept is that certain levels of fee increases could occur without adversely affecting enrollment behavior because student earnings and family income growth between the current and the ensuing academic year would increase the capacity of students to pay for a portion of the increased costs of their educations.

To incorporate this concept into the model in a plausible fashion required that the inflation adjustment be sensitive to differences in income growth among students from low-, middle-, and high-income families. As a result, Version 4 incorporates an inflation adjustment that varies with income level. In the case of the University and State University, this adjustment constitutes an implicit enrollment threshold level that differs for students from families with different incomes. In other words, the model subtracts this adjustment along with any offsets from the Pell Grant program from any proposed fee increase to determine the effective "net price increase" that different types of students would face.

10. Estimates of the Amount of Additional Financial Aid Needed From the State in the Event of a Fee Increase

The projections of financial aid offsets in the original model were based solely on the provisions of existing student financial aid programs, particularly the Pell Grant program. The Price of Admission observed that if the State were to provide additional aid money, or if a portion of any fee increase were set aside by each segment to provide additional financial aid for its students, the enrollment losses would be reduced somewhat from the levels it

projected. It noted that the model could accommodate new student aid programs, but no attempt was made at that time to speculate as to what they might be.

By 1980, however, more precise estimates of additional student aid needs seemed imperative because of the State's commitment to maintaining access and because of the uncertainty over the funding levels for the Cal Grant programs. Therefore, later versions of the model provided estimates of the total new financial need that any fee increase would create for Pell-eligible students. Version 4 maintains the original concept of linking fee increases with the provision of additional financial aid for students with demonstrated financial need, but refines the original estimates of the amount of grant money required by basing the projections on the number of current financial aid recipients in each segment.

After discussions with the users' group, the decision was made to use current financial aid recipients, rather than theoretical Pell eligibles, to estimate additional financial aid needs. There were three reasons for the change in procedure. First, recent administrative changes in the Pell Grant program excluded a significant number of current aid recipients from eligibility for Pell Grants and thus provided too restrictive a definition of financially needy students. Second, the use of theoretical Pell Grant eligibles tended to overestimate the actual number of Pell recipients by varying amounts for each public segment. The overlap between Cal Grant recipients, other current segmental aid recipients, and Pell Grant recipients suggested the need to consider each group separately in constructing estimates of additional aid needs. The first concern suggested the need for a different computation basis for estimates of additional aid needs, the second was corrected in Version 4 by modifying the computation of theoretical Pell eligibles in making estimates of Pell Grant offsets to net price changes, and the third was remedied in the new version by providing separate aid figures for eligible Cal Grant recipients and other segmental aid recipients and thus eliminating potential double counting. Moreover, the new procedures provide greater consistency in the treatment of both undergraduate and graduate students with demonstrated financial need.

Thus, after defining the total unmet need among undergraduate aid recipients who do not receive Cal Grants, Version 4 computes the amount that would be offset by the Pell Grant program if State or institutional aid funds were provided to induce more of these needy students to remain enrolled. These projections indicate the amount of additional financial aid needed from the State or the segments to offset that portion of the fee increase not covered either by federal funds or by the amount that inflation-based income growth would presumably permit students and their families to contribute.

The latter self-help or non-grant aid amounts vary by family income level to reflect contemporary financial aid packaging assumptions about the mix of grant, work, and loan aid appropriate for different types of students. Such aid estimates represent the amount of additional grant assistance required to assist all needy, current undergraduate aid recipients carrying more than a half-time load.

The model makes no assumptions as to the actual distribution mechanism for these aid funds among individual institutions within a segment or among individual students. It does, however, estimate the amount of attrition among current need-based aid recipients that could be prevented if additional aid dollars were provided.

For graduate students, Version 4 also relies upon the number of current aid recipients to construct its estimates. However, graduate students with California Graduate Fellowships, federal fellowships, research assistantships, and teaching assistantships are excluded because their increased fees would be offset from those sources. Those whose only form of financial assistance currently is a Guaranteed Student Loan also are excluded. For the remaining group of graduate financial aid recipients, the size of each grant would be equal to the full amount of any fee increase minus a non-grant aid or self-help adjustment. This additional grant aid money would enable the two four-year segments to meet the demonstrated financial aid needs of their most needy and most highly qualified graduate and professional students and to help maintain the diversity and overall quality of their graduate programs.

The undergraduate and graduate student financial aid estimates are then used in the model, along with the Cal Grant aid estimates, to make revised projections of the enrollment losses that might occur if fees are increased and such funds are made available. Because of the federal financial aid funds involved, the provision of additional aid money by the State reduces the potential enrollment losses and at the same time generates additional fee income for the segments.

11. Eligibility for State Student Financial Aid and Financial Aid Offsets for Current Cal Grant A, Cal Grant B, and Graduate Fellowship Recipients

The current Cal Grant A and Cal Grant B programs administered by the California Student Aid Commission assist students in both public and independent institutions. The number of awards is fixed by statute, and the original model in The Price of Admission assumed that current recipients could count on additional financial aid

from this source in the event of increased student charges. It assumed that Cal Grant A recipients, including those who were among the Community College reserve winners, would have the entire amount of any fee increase offset by the State, and it assumed that Cal Grant B winners would have the entire amount of any increase covered by the State after the first year. (New Cal Grant B winners do not receive any money from the State to cover student charges during their first year, but since most of them are from disadvantaged, low-income families, they probably qualify for a Pell Grant that would cover approximately one half of any fee increase during their first year. The additional grant aid requirements of first-year Cal Grant B recipients, moreover, are included in the estimates of segmental aid needs discussed in Section 10 above.)

Beginning with the Proposition 9 contingency planning exercise in 1980, it became evident that the assumptions in The Price of Admission about increases in Cal Grants were overly optimistic. That conclusion was reinforced in 1981 when the Student Aid Commission did not receive sufficient funds to cover the legislatively imposed fee increases at the University and the State University for current Cal Grant A and B recipients. For example, in 1981-82, the University's Cal Grant A recipients received only $800 of the $1,000 student charges, despite the fact that their grants in the past have covered the full amount of all tuition and fees up to $3,400 or net need, whichever comes first. For several years, the updated versions of the model included no automatic financial aid offsets to fee increases from the Cal Grant programs, including the Graduate Fellowship Program, but Version 4 once again provides estimates of the amount of additional financial aid funds necessary to cover any new fee increases for current eligible Cal Grant A, Cal Grant B, and Graduate Fellowship recipients. While the amount required is summarized for each segment separately from the amount of additional segmental aid needed, no assumptions have been made about how the money would be distributed or to whom it would be appropriated. The separate accounting is done to prevent double counting in the construction of aid estimates. When taken together, the estimates of segmental aid and Cal Grant aid show the total amount of additional grant money necessary to assist current aid recipients and reduce attrition due to increased fees.

12. Estimates of Enrollment Impact on Community Colleges

Estimates of the enrollment impact of increased student charges in the Community Colleges are much more uncertain than those for the four-year segments for a number of reasons. Current SEARS data on income distribution are most reliable for full-time dependent students and less so for independent (self-supporting) students taking less than six units per term. Almost all national studies of the price responsiveness of students focus on traditional under-

graduates between the ages of 18 and 24 who generally are enrolled full time. The Community Colleges, however, enroll large numbers of older part-time students. Moreover, the existing evidence suggests that older students are more price responsive than younger ones, that low-ability students are more price responsive than high-ability students, that part-time students are more price responsive than full-time students, and that students without clear career and degree objectives are more price responsive than those whose goals and degree objectives are more well defined. Finally, the current tuition-free, low- or no-fee status of California's Community Colleges makes projections based upon tuition-elasticity coefficients unreliable, if not impossible to compute.

To assess the impact of increased student charges on full-time student enrollment in the Community Colleges, the model recognizes that important similarities still exist between these students and full-time lower division students at the State University. For example, their average credit loads were almost identical last year; their income distribution were similar (though weighted more heavily toward lower income levels in the Community Colleges than in the State University); and their average ages were close.

For part-time Community College students, however, the model is different because these students are quite distinctive. The model relies on the research of Bishop and Van Dyk on the factors affecting adult enrollment in higher education, mainly students over 25 years of age enrolling primarily in Community Colleges. Among the variables they identified were tuition or cost, proximity to a two-year college, the existence of an open-door admissions policy, student charges at nearby four-year institutions, veterans' status, occupation, number of children, age, gender, local unemployment rates, and income.

Bishop and Van Dyk (1977) used a conditional logit equation to corroborate their findings which had been derived initially using the more familiar multiple regression techniques. Their logit coefficients for the effect of tuition on enrollments are used in the Commission's model. Because these nonlinear coefficients cannot be adjusted for inflation, the model adjusts net increases in student charges instead. Moreover, it also takes into account differences in the price responsiveness of part-time students from low-, middle-, and high-income families and the financial aid offsets that would be available to Pell-eligible students enrolled for at least a half-time load per term. In addition to its projections of likely enrollment effects for students taking credit courses, Version 4 provides separate estimates of the enrollment

and revenue impact of increased charges on students enrolled in State-supported, non-credit courses.*

REVENUE ESTIMATION COMPONENTS OF THE MODEL

The model's six major revenue estimates are: (1) the tuition or fee revenue generated from higher fees if no new financial aid programs are created; (2) the FTE reductions in enrollment that would occur if no new aid were provided; (3) the amount of new segmental aid needed to assist current non-Cal Grant undergraduate and graduate financial aid recipients; (4) the amount of additional Cal Grant aid needed to assist Cal Grant A and eligible Cal Grant B recipients; (5) the tuition revenue generated from higher student charges if both of these amounts of additional aid were provided; and (6) the net FTE enrollment losses that would occur if the additional aid were provided.

1. Estimating the Tuition Revenue Derived From Increased Student Charges if No New Aid Programs Were Created

Computing the tuition or fee revenue generated in each segment by an increase in student charges involves not only multiplying the amount

*The equation used here for assessing the enrollment impact of increased charges on part-time Community College students is a logarithmic equation of the following form:

$$(\Delta E/E) = (1-P)(e^{\mu\Delta x}-1)/[(1-P) + Pe^{\mu\Delta x}]$$

where:

ΔE = The change in enrollment of that particular type of student produced by a given increase in student charges;

E = The current enrollment of that particular type of student;

P = The participation rate of that particular type of student;

μ = The logit coefficient for tuition and fee effects for that particular type of student;

Δx = The net increase in student charges expressed in increments of $100 or fractions thereof; and

e^n = The natural antilog. It raises 2.71828 to the n^{th} power. In this case, n equals the value of $\mu\Delta x$.

of the increase by the number of students remaining to pay it, but also subtracting the amount of the current charges paid by those students who would leave because of the increased charges.*

2. Estimating the Full-Time Equivalent (FTE) Enrollment Losses if No New Aid Were Provided

The model takes enrollment losses into consideration both in calculating the tuition revenue that would be generated by increased student charges and in computing FTE enrollment reductions. The second of these projections is necessary because the State's funding

*For example, the tuition revenue generated in each segment by a $100 increase in student charges can be calculated from the following:

$$R_{UC} = \$100(E-E') + \$100(E_{nr} - E_{nr}') - \$997(E') - \$3,877(E_{nr}')$$

$$R_{CSU} = \$100(E-E') + \$100(E_{nr} - E_{nr}') - \$316(E') - \$3,151(E_{nr}')$$

$$R_{CCC} = \$100(E-E') + \$60(E_{p} - E_{p}')$$

where:

R = The additional gross revenue generated in the segment designated by the subscript;

E = The resident undergraduate enrollment in the University regardless of credit load;

E' = The resident undergraduate students in the University who would leave because of the increase in student charges;

E_{nr} = The number of nonresident students currently enrolled in that particular public segment;

E_{nr}' = The number of nonresident students who would leave because of the increase in student charges;

E_f = The number of resident students taking more than six units of course work per term;

E_f' = The number of resident students taking more than six units of course work per term who would leave because of the increase in student charges; and

E_p = The number of resident students taking six units or less per term;

E_p' = The number of resident students taking six units or less per term who would leave because of the increase in student charges.

Of course, the actual computations when made by the computer model are done for students at each student level, residency status, credit load category, and income level and then aggregated for presentation in the various reporting formats.

formulas for each segment are enrollment sensitive. That is, State budget formulas are based on full-time-equivalent (FTE) enrollment and not on headcount enrollment. Thus, while it is actual headcount students who enroll in college, pay the required student charges, take courses, graduate, and sometimes decide to leave college early, both those enrollments and enrollment losses must be converted to FTE enrollments and enrollment losses for budget purposes.

The FTE conversions in the model are based on the average credit load of students in each of the credit-load categories at each student level.* They are not made by applying a single FTE conversion factor to all students.

Version 4 does not translate the projected headcount or FTE enrollment reductions into enrollment-related budget reductions as earlier versions did. Like earlier versions, however, it provides projections of the probable enrollment losses and revenue gains which would result from various levels of student fee increases both with and without additional student financial aid. The projected enrollment losses are estimates of the level of change that would occur if fees were raised. Yet, other factors in addition to fees also influence student enrollment decisions and segmental enrollment patterns, and the model makes no attempt to predict the enrollment impact of program cuts, enrollment ceilings, long term demographic trends, federal financial aid reductions, unemployment levels, or shifts from independent to public institutions. Consequently, while the headcount and FTE projections in Version 4 represent best estimates of the impact of fee increases on enrollments, financial aid needs, and revenues, they are not estimates of overall segmental enrollment levels. No enrollment-related budget reduction figures are projected because the Commission feels that the model's estimates along with consideration of other non-fee related enrollment factors must be evaluated before determining any segment's actual budgeted FTE level.

3. Estimating the Amount of New Segmental Aid Needed to Assist the Neediest Undergraduate and Graduate Students

The method used in the model to estimate the amount of additional financial aid required was discussed in Item 10 on page 10 above.

*The credit load categories used in this report are:

(1) full-time -- 12 units or more;
(2) part-time -- 6 to 11.9 units per term; and
(3) part-time -- fewer than 6 units per term.

The average credit load for students in each of these categories also varies by student level.

The model uses this estimate along with the estimate of additional Cal Grant aid needed to make revised projections of the enrollment losses that would occur if such aid funds were made available. Because the additional aid would enable needy, currently enrolled students to remain enrolled and others like them to enroll in the future, and because of the federal financial aid funds involved at the undergraduate level, the provision of additional segmental aid funds by the State reduces enrollment losses and at the same time generates additional fee income.

4. Estimating the Amount of Additional Cal Grant Aid Needed to Assist Eligible Current Recipients

The method used in the model to estimate the additional funding necessary for the State's major financial aid programs was discussed in Item 11 on page 12 above. The model uses this estimate along with the estimate of segmental aid requirements to make its revised projections of enrollment losses.

5. Estimating the Tuition or Fee Revenue Generated From Higher Student Charges if Additional Financial Aid Were Provided

The formulas for calculating tuition revenues with additional aid are identical to those used for calculating tuition revenue without aid, except that the projected enrollment losses are less. Unlike earlier versions of the model, however, Version 4 does not subtract the cost of providing the aid from the revenues generated by increased fees. The reasons are twofold: (1) two different types of additional aid are computed and it was assumed that funding for at least the Cal Grant amounts, if not for both, would come from State General Funds, not student fee revenues; and (2) the ACR 81 report recently adopted by the Commission recommended that financial aid be funded by the State, not by student fees. In short, the revenue figures with aid are for the total revenue produced by the higher fees after taking enrollment losses into consideration, they are not net revenue figures which also subtract the cost of the additional aid.

6. Estimating the FTE Enrollment Losses That Would Occur if the Additional Aid is Provided

Since only those undergraduates carrying at least a half-time load per term are eligible for financial aid in any aid program, the additional students retained as a result of the new aid would be either full-time or at least half-time undergraduate and graduate students. This means that the net headcount enrollment losses

projected by the model would consist primarily of part-time students enrolled for one credit course per term in one of the three public segments or in State-supported noncredit courses in the Community Colleges. Applying the headcount-to-FTE conversion factors to the net enrollment loss with aid substantially reduces the overall FTE losses.

CONTINUING EVOLUTION OF THE MODEL

When Commission staff first began this research project in the summer of 1978, several other approaches could have been used to investigate the possible impact of increased student charges on enrollment and revenues in California public higher education. It would have been possible to conduct an extensive study using individual student data and the most sophisticated mathematical modeling to measure the effects of price, ability, family income, and other critical variables on student access and choice in California. However, the amount of time required and the substantial expense involved for such a study made this option unattractive at that time. Moreover, the lack of significant intrasegmental cost variations, the minimal periodic increases in student charges prior to 1981, and the absence of individual data related to intersegmental eligibility mixes made it unlikely that statistically significant results could have been obtained through either standard multiple regression or conditional logit procedures.

On the other hand, considering the imperfections in available data, it would have been possible to apply a single, national-average figure for enrollment losses to California's public institutions. To do so, however, would have meant ignoring all the important differences in public higher education between California and the rest of the nation. It would also have meant ignoring the important differences in the cost, mission, selectivity, and types of students that exist among the State's public segments of higher education.

The approach adopted by the Commission avoids both of these extremes. Rather than attempt to replicate the most sophisticated studies on student demand and choice or simply apply national norms to California, the relevant findings from the best national studies were selected for application to California's situation. Admittedly, not all the data necessary for an assessment of the impact of increased charges on enrollment existed for each public segment in the precise form needed or desired. Moreover, not all types of students had been studied adequately, and the information about the price responsiveness of part-time students and certain graduate students was limited. As a result, certain assumptions had to be

made to complete a workable model. Widespread consultation with the segments, State agencies, and other interested parties through the State-level users group played a significant role in refining these assumptions over time. The assumptions were tested for reasonableness each year in light of the three segments' experiences with increased student charges, financial aid changes, and enrollment patterns. Further, the assumptions were explicitly specified in the model so that technical adjustments or corrections could be made whenever they proved necessary. In 1980 and again in 1982, for example, when the federal government modified the basic provisions of the Pell Grant program so that it provided less assistance to a shrinking pool of eligible students, the model's financial aid estimation procedures were modified to reflect the changes in time to provide the Legislature, the Department of Finance, the Legislative Analyst, and other concerned parties with revised simulations of the likely impact of the fee increases then under consideration.

Each year the model is updated to include more timely enrollment, fee, and financial aid information so that its simulations are based on the best information available. Furthermore, the users group continues to serve the three purposes for which it was created: (1) to provide timely access to the model for all interested users, (2) to ensure its operational integrity, and (3) to facilitate an ongoing, structured process for the development of modifications as the need for them emerges. Version 4 reflects the value of this process for reaching consensus on appropriate refinements to the model.

Given the inherent limitations of knowledge, the projections produced by Version 4 of the model represent best estimates. The model makes no attempt to predict the enrollment impact of program cuts, enrollment ceilings, long term demographic trends, federal financial aid reductions, unemployment levels, or shifts from independent to public institutions. Nevertheless, it provides reasonably accurate approximations of the likely impact of possible increases in student charges on enrollment, student aid, and revenue within California public higher education.

Commission staff are committed to continue their work to improve the model through consultation with appropriate State and segmental representatives and through their own research on student enrollment behavior, educational access and opportunity, student financial aid policy, and educational finance.

CHAPTER SIX

AN EXAMPLE OF THE MODEL'S SIMULATION CAPABILITIES

As described in the previous chapter, Version 4 of the student charges model projects the probable enrollment losses and revenue gains which would result from various levels of increases in student fees, both with and without additional student financial aid. Of course, other factors in addition to fee increases influence student enrollment decisions and segmental enrollment patterns, and the model makes no attempt to predict the enrollment or revenue impact of program cuts, enrollment ceilings, long-term demographic trends, federal financial aid reductions, unemployment levels, or shifts from independent to public institutions. In short, Version 4 provides best estimates of the impact of fee increases on enrollments, financial aid needs, and revenues, not estimates of overall segmental enrollment levels.

The model permits simulation of the impact of fee increases separately for each segment, each student level, and three credit load categories. The results may be obtained at one or more of three levels of detail depending on the needs and interests of those requesting the simulation. These there levels of report are:

1. Student Level Report, which presents results by six student levels (lower division, upper division, master's, doctoral, health professional, and other professional) as appropriate for each of the segments.

2. Student Category Report, which presents results separately for residents and nonresidents within each student level and for three credit-load categories (full-time, 6.0-11.9 units, and fewer than six units per term) within the resident category. (Note: The model considers all University graduate and professional students to be enrolled full-time for this purpose.)

3. Family Income Report, which separates the results of each of the undergraduate resident credit-load categories from the Student Category Report by family income into low income (under $15,000), middle income ($15,000-$29,999), and high income ($30,000 and above) categories.

The tables that follow simulate the effects of a $150-per-year across-the-board increase in student charges at the three public segments. The purpose of selecting this particular example is to illustrate the full capabilities of the model in estimating the enrollment and revenue impact of such a change both with and without additional aid provided by the State for current eligible Cal Grant recipients and

for other undergraduate and graduate students with demonstrated financial need. A part-time fee differential is included for State University and Community College students enrolled for fewer than six units per term, and the financial aid offsets from the federal Pell Grant program are incorporated into the net price computations for eligible full-time undergraduates and for part-time undergraduates enrolled for more than six units per term.

ENROLLMENT EFFECTS

The University of California

Table 13 on pp. 87-90, which is a reproduction of a computer printout from the Commission's student charges model family income report, summarizes the impact of the $150-per-year fee increase on students at the University of California. The model projects that such an increase would have almost no effect on overall enrollment--barely a 0.1 percent drop if no additional aid were provided beyond that available from the federal Pell Grant program for eligible undergraduates and a 0.06 percent drop when additional aid is provided to eligible Cal Grant recipients and to other students with demonstrated financial need. The figures reveal that the losses would occur primarily among nonresident students who already face a $270 increase in non-resident tuition for 1982-83 in addition to the simulated fee increase, some low-income undergraduates who would be retained with the provision of additional aid, and a few part-time undergraduates. Such attrition rates are quite consistent with what is known about the behavior of high-ability students from middle- and upper-income groups--the predominant type of undergraduate at the University. Furthermore, the projected losses are so small that other factors affecting the University's enrollments would probably offset the minor losses attributed to fee increases.

The California State University

Table 14 on pp. 91-93 shows that the impact of the same fee increase would be greater on State University enrollments in spite of the provision to charge students enrolled for fewer than six units per term only 75 percent of what other students are charged. With no additional aid provided, the simulation suggests that higher fees would reduce undergraduate, headcount enrollment by 2,495 students, or 1.0 percent. Graduate enrollments would drop by less than 50 students, primarily because the magnitude of the simulated fee increase is quite small for the large number of State University graduate students who enroll for less than six units per term and because

(text continues on page 94)

TABLE 13 *Simulation of the Impact of a $150-Per-Year Increase in Student Charges for All Students at the University of California*

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	WITH AID: SEGMENTAL AID NEEDED ($M)	WITH AID: CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
UC	LOWER DIV	NONRESIDENT	ALL	3008	4297	15	.389	15	0.0	0.0	0	15	.389	15
				3008		15	.389	15	0.0	0.0	0	15	.389	15
		RES. FULL-TIME	LOW	5825		31	.838	30	.096	.455	31	0	.874	0
			MID	10530		0	1.579	0	.194	.489	0	0	1.579	0
			HIGH	28452	1147	0	4.268	0	.045	.162	0	0	4.268	0
				44807		31	6.685	30	.332	1.107	31	0	6.721	0
		RES. 6.0-11.9	LOW	398		9	.049	6	0.0	0.0	0	9	.049	6
			MID	719		0	.108	0	0.0	0.0	0	0	.108	0
			HIGH	1942	1147	0	.291	0	0.0	0.0	0	0	.291	0
				3059		9	.448	6	0.0	0.0	0	9	.448	6
		RES. 5.9 OR FEWER	LOW	82		3	.009	1	0.0	0.0	0	3	.009	1
			MID	148		0	.022	0	0.0	0.0	0	0	.022	0
			HIGH	400		0	.060	0	0.0	0.0	0	0	.060	0

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TABLE 13 (continued)

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	SEGMENTAL AID NEEDED ($M)	CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
					1147									
				650		3	.091	1	0.0	0.0	0	3	.091	1
	TOTAL			51504		58	7.614	51	.332	1.107	31	27	7.650	21
	PCT					.1						.1		
	UPPER DIV	NONRESIDENT	ALL											
				2111		11	.273	11	0.0	0.0	0	11	.273	11
					4297									
				2111		11	.273	11	0.0	0.0	0	11	.273	11
		RES. FULL-TIME	LOW											
				5437		20	.792	20	.101	.554	20	0	.816	0
			MID											
				9828		0	1.474	0	.624	.537	0	0	1.474	0
			HIGH											
				26556		0	3.983	0	.157	.175	0	0	3.983	0
				41821	1147	20	6.250	20	.883	1.267	20	0	6.273	0
		RES. 6.0-11.9	LOW											
				392		9	.048	5	0.0	0.0	0	9	.048	5
			MID											
				710		0	.106	0	0.0	0.0	0	0	.106	0
			HIGH											
				1918		0	.288	0	0.0	0.0	0	0	.288	0
				3020	1147	9	.443	5	0.0	0.0	0	9	.443	5
		RES. 5.9 OR FEWER	LOW											
				65		2	.007	1	0.0	0.0	0	2	.007	1

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TABLE 13 (continued)

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	WITH AID: SEGMENTAL AID NEEDED ($M)	WITH AID: CAL-GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
			MID	117		0	.018	0	0.0	0.0	0	0	.018	0
			HIGH	317		0	.048	0	0.0	0.0	0	0	.048	0
				499	1147	2	.072	1	0.0	0.0	0	2	.072	1
	TOTAL			47451		42	7.038	37	.883	1.267	20	22	7.061	17
	PCT					.1						.0		
	MASTERS	NONRESIDENT	ALL	3065		16	.397	16	0.0	0.0	0	16	.397	16
				3065	4343	16	.397	16	0.0	0.0	0	16	.397	16
		RES. FULL-TIME	ALL	9983		0	1.497	0	.582	.016	0	0	1.497	0
				9983	1193	0	1.497	0	.582	.016	0	0	1.497	0
	TOTAL			13048		16	1.894	16	.582	.016	0	16	1.894	16
	PCT					.1						.1		
	DOCTORAL	NONRESIDENT	ALL	3960		20	.512	20	0.0	0.0	0	20	.512	20
				3960	4343	20	.512	20	0.0	0.0	0	20	.512	20
		RES. FULL-TIME	ALL	10969		0	1.645	0	.634	.005	0	0	1.645	0
				10969	1193	0	1.645	0	.634	.005	0	0	1.645	0
	TOTAL			14929		20	2.158	20	.634	.005	0	20	2.158	20
	PCT					.1						.1		
	HEALTH PROF	NONRESIDENT	ALL	145		0	.022	0	0.0	0.0	0	0	.022	0

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TABLE 13 (concluded)

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	WITH AID: SEGMENTAL AID NEEDED ($M)	WITH AID: CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
					4343									
				145		0	.022	0	0.0	0.0	0	0	.022	0
		RES. FULL-TIME	ALL											
				3834		0	.575	0	.198	.024	0	0	.575	0
					1193									
				3834		0	.575	0	.198	.024	0	0	.575	0
	TOTAL			3979		0	.597	0	.198	.024	0	0	.597	0
	PCT					0.0						0.0		
	OTHER PROF	NONRESIDENT	ALL											
				422		2	.055	2	0.0	0.0	0	2	.055	2
					4343									
				422		2	.055	2	0.0	0.0	0	2	.055	2
		RES. FULL-TIME	ALL											
				2766		0	.415	0	.125	.006	0	0	.415	0
					1193									
				2766		0	.415	0	.125	.006	0	0	.415	0
	TOTAL			3188		2	.470	2	.125	.006	0	2	.470	2
	PCT					.1						.1		
TOTAL				134099		138	19.770	126	2.754	2.425	51	87	19.829	77
PCT						.1						.1		

TABLE 14 Simulation of the Impact of a $150-Per-Year Increase in Student Charges for all State University Students Enrolled for More than Six Units per Term with a Differential for Students Enrolled for Fewer than Six Units

						WITHOUT AID					WITH AID			
SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	HEAD COUNT LOSS	TUITION REVENUE ($M)	FTE LOSS	SEGMENTAL AID NEEDED ($M)	CAL GRANT NEEDED ($M)	HEAD COUNT RETAIN	NET ENROLL LOSS	TUITION REVENUE ($M)	NET FTE LOSS
CSU	LOWER DIV	NONRESIDENT	ALL	4355	3616	39	.524	34	0.0	0.0	0	39	.524	34
				4355		39	.524	34	0.0	0.0	0	39	.524	34
		RES. FULL-TIME	LOW	12930		461	1.724	439	.417	.518	461	0	1.939	0
			MID	19935		0	2.990	0	.453	.369	0	0	2.990	0
			HIGH	39366		0	5.905	0	.053	.085	0	0	5.905	0
				72231	466	461	10.620	439	.923	.971	461	0	10.835	0
		RES. 6.0-11.9	LOW	2487		215	.273	125	.166	0.0	215	0	.373	0
			MID	3836		117	.521	68	.124	0.0	117	0	.575	0
			HIGH	7573		0	1.136	0	.014	0.0	0	0	1.136	0
				13896	466	332	1.930	192	.304	0.0	332	0	2.084	0
		RES. 5.9 OR FEWER	LOW	708		11	.019	4	0.0	0.0	0	11	.019	5
			MID	1091		0	.034	0	0.0	0.0	0	0	.034	0
			HIGH	2154		0	.068	0	0.0	0.0	0	0	.068	0

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TABLE 14 (continued)

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	WITH AID: SEGMENTAL AID NEEDED ($M)	WITH AID: CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
				3953	347	11	.121	3	0.0	0.0	0	11	.121	3
	TOTAL			94435		843	13.195	649	1.227	.971	793	50	13.564	37
	PCT					.9						.1		
	UPPER DIV	NONRESIDENT	ALL	6503		58	.783	50	0.0	0.0	0	58	.783	50
				6503	3616	58	.783	50	0.0	0.0	0	58	.783	50
		RES. FULL-TIME	LOW	17491		618	2.336	599	.752	.720	618	0	2.624	0
			MID	26969		0	4.045	0	.883	.415	0	0	4.045	0
			HIGH	53255		0	7.988	0	.104	.091	0	0	7.988	0
				97715	466	618	14.369	599	1.739	1.225	618	0	14.657	0
		RES. 6.0-11.9	LOW	7029		607	.771	332	.242	0.0	607	0	1.054	0
			MID	10858		330	1.472	180	.180	0.0	330	0	1.626	0
			HIGH	21402		0	3.210	0	.021	0.0	0	0	3.210	0
				39269	466	937	5.454	512	.443	0.0	937	0	5.890	0
		RES. 5.9 OR FEWER	LOW	2440		58	.065	9	0.0	0.0	0	58	.065	9

TABLE 14 (concluded)

SEG MENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	WITH AID: SEGMENTAL AID NEEDED ($M)	WITH AID: CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
			MID	3762		0	.119	0	0.0	0.0	0	0	.119	0
			HIGH	7430		0	.234	0	0.0	0.0	0	0	.234	0
				13632	347	38	.417	9	0.0	0.0	0	38	.417	9
	TOTAL			157119		1652	21.023	1171	2.182	1.225	1555	97	21.748	59
	PCT					1.1						.1		
	MASTERS	NONRESIDENT	ALL	4149		37	.500	27	0.0	0.0	0	37	.500	27
				4149	3616	37	.500	27	0.0	0.0	0	37	.500	27
		RES. FULL-TIME	ALL	13648		0	2.047	0	.393	.008	0	0	2.047	0
				13648	466	0	2.047	0	.393	.008	0	0	2.047	0
		RES. 6.0-11.9	ALL	27326		0	4.099	0	.056	0.0	0	0	4.099	0
				27326	466	0	4.099	0	.056	0.0	0	0	4.099	0
		RES. 5.9 OR FEWER	ALL	22989		0	.724	0	0.0	0.0	0	0	.724	0
				22989	347	0	.724	0	0.0	0.0	0	0	.724	0
	TOTAL			68112		37	7.370	27	.449	.008	0	37	7.370	27
	PCT					.1						.1		
TOTAL				319666		2532	41.580	1866	3.058	2.203	2348	184	42.682	123
PCT						.8						.1		

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graduate students in general are probably somewhat less price responsive than most undergraduates. The simulation shows that without additional financial aid, the projected enrollment losses would be confined primarily to low- and middle-income undergraduates and to a few nonresident undergraduate and graduate students.

It may appear odd that without additional aid enrollment would decline so much more in the State University than in the University, but a number of factors probably contribute to this pattern. First, the current fee structures in the two segments differ markedly, and $150 represents a much greater percentage increase in the State University than in the University. Second, despite the existing Pell Grant program, low-income students are more price responsive than those from families in the higher-income brackets; and low-income students account for not quite one out of every five undergraduates in the State University in contrast to about one out of eight at the University. Third, the admissions requirements and the characteristics of students differ between the two segments, and in general high ability students are less price responsive than medium ability students. Fourth, the possible substitution of two years at a local Community College in the event of fee increases would be much more likely among lower-division commuter students at the State University than among typical lower division students at the University. Fifth and finally, part-time students comprise a much larger proportion of the State University's undergraduate enrollment than the University's--particularly at the upper division level--and this greater incidence of part-timers increases the likelihood of a higher overall attrition rate in the State University.

The figures in Table 14 also reveal clearly that if additional financial aid funds were provided when fees are increased, most, but not all, of the attrition that would otherwise occur at the State University could be prevented. The impact of the additional aid funds is particularly dramatic in the State University because of its large number of price-sensitive undergraduates. The simulations show that the provision of $6 million dollars to assist eligible Cal Grant recipients and other students with demonstrated financial need would help to retain about 1,900 low-income and nearly 450 middle-income undergraduates who otherwise would probably drop out or enroll in a Community College. In other words, the effect of coupling additional aid funds with the fee increase would be to reduce the overall projected attrition by 2,532 students to about 184--a reduction from a 0.8 percent enrollment loss to 0.1 percent.

California Community Colleges

Table 15 on pp. 95-96 indicates that the attrition rate in the Community Colleges would be higher than in the other two public segments even if part-time students taking fewer than six units per term were charged $90 per year instead of the full $150 for other students.

TABLE 15 Simulation of the Impact of a $150-Per-Year Increase in Student Charges for Community College Students Enrolled for More than Six Units per Term with a Differential for Students Enrolled for Fewer than Six Units

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	SEGMENTAL AID NEEDED ($M)	CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
CCC	LOWER DIV	RES. FULL-TIME	LOW	114421		18722	14.355	17985	8.582	.528	18722	0	17.163	0
			MID	96163		10178	12.898	9778	2.014	.049	1513	8665	13.125	8324
			HIGH	93729		8210	12.828	7887	0.0	.001	0	8210	12.828	7887
				304313	150	37110	40.080	35650	10.596	.578	20235	16875	43.116	16212
		RES. 6.0-11.9	LOW	129490		28713	15.116	15046	1.943	0.0	12692	16021	17.020	8395
			MID	108827		14165	14.199	7423	.253	0.0	1588	12577	14.438	6590
			HIGH	106072		10233	14.376	5362	0.0	0.0	0	10233	14.376	5362
				344389	150	53112	43.692	27831	2.196	0.0	14280	38831	45.834	20348
		RES. 5.9 OR FEWER	LOW	226961		37503	17.051	7101	0.0	0.0	0	37503	17.051	7101
			MID	190744		16506	15.681	3125	0.0	0.0	0	16506	15.681	3125
			HIGH	185915		10919	15.750	2067	0.0	0.0	0	10919	15.750	2067
				603620	90.0	64928	48.482	12293	0.0	0.0	0	64928	48.482	12293
		NONCREDIT	LOW	66570		11109	4.991	4673	0.0	0.0	0	11109	4.991	4673

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TABLE 15 (concluded)

SEGMENT	STUDENT LEVEL	STUDENT CATEGORY	FAMILY INCOME	CURRENT ENROLL	NEW FEE ($)	WITHOUT AID: HEAD COUNT LOSS	WITHOUT AID: TUITION REVENUE ($M)	WITHOUT AID: FTE LOSS	SEGMENTAL AID NEEDED ($M)	CAL GRANT NEEDED ($M)	WITH AID: HEAD COUNT RETAIN	WITH AID: NET ENROLL LOSS	WITH AID: TUITION REVENUE ($M)	WITH AID: NET FTE LOSS
			MID	55947		4885	4.596	2055	0.0	0.0	0	4885	4.596	2055
			HIGH	54531		3232	4.617	1360	0.0	0.0	0	3232	4.617	1360
				177048	90.0	19227	14.204	8088	0.0	0.0	0	19227	14.204	8088
	TOTAL			1429370		174376	146.458	83862	12.792	.578	34515	139861	151.635	56940
	PCT					12.2						9.8		
TOTAL				1429370		174376	146.458	83862	12.792	.578	34515	139861	151.635	56940
PCT						12.2						9.8		

Overall enrollment would drop by 12.2 percent, or 174,376 students, without additional aid and by 9.8 percent, or 139,861 students, even if more aid were provided.

The case of the Community Colleges is unique because these institutions currently do not charge general fees to their regular students, and even incidental user fees are quite low and variable. The psychological impact of imposing general fees on these students for the first time would be severe, although this impact would likely lessen in subsequent years. In addition, although the income distribution among full-time Community College students more closely resembles that in the State University than in the University, the proportion of low-income students in the Community Colleges is more than twice as large as their proportion in the State University--37.6 compared to 17.9 percent. The ability levels of Community College students are much more varied than in either of the other public segments. More than 603,600 of the Community Colleges' total enrollment of 1,429,370 in Fall 1981 were enrolled for fewer than six units per term, 344,389 more were enrolled for six or more units per term but less than full-time, and 177,048 were part-time students enrolled in noncredit courses.

An examination of the projections for this diverse group of students reveals that the projected attrition in the Community Colleges without additional aid beyond the Pell Grant program would be heaviest among low-income students, part-time students, and those enrolled part-time in noncredit courses. The provision of grant aid or fee waivers for eligible Cal Grant A reserve winners, Cal Grant B renewal students, and other students with demonstrated financial need such as EOPS students would reduce attrition significantly among some of these groups. For example, it would reduce overall attrition among full-time students by 54 percent and eliminate it entirely among low-income full-time students. It would also reduce projected enrollment losses among part-time students taking six or more units per term by nearly 27 percent and cut the losses among low-income part-time students in this group by 44 percent. Although the fee increase for part-time students taking fewer than six units per term would be less than for other students, no existing State or federal financial aid program provides aid for students enrolled less than half-time and none is assumed in the model. As a result, more than six out of every ten students that, according to the model, would leave the Community Colleges even with additional aid for eligible students would be either part-time students enrolled for a single course per term or else part-timers taking noncredit courses who are either unable or unwilling to pay $45 per semester in general fees.

Total Enrollment in All Three Segments

Altogether, the figures in these three tables indicate that a $150-per-year across-the-board fee increase for full-time students in the

three public segments and a lesser increase for State University and Community College students taking fewer than six units per term would result in an enrollment decline of 177,000 students if no new financial aid were provided. With additional aid to offset the fee increases for eligible students with demonstrated financial need, these enrollment losses would be almost entirely eliminated in the two four-year segments and the overall losses reduced to about 140,100. More than 99 percent of the remaining losses would occur in the community colleges, and almost 88 percent would be among part-time students.

Because of the annual cycle of new freshmen and transfer students entering the segments at the start of each term, and others transferring or graduating at the end, this projected enrollment decline would not be confined strictly to currently enrolled students. Although the largest component of the enrollment decline would naturally be from attrition--that is, from currently enrolled students who decided that they would no longer continue in the same segment--the enrollment loss would also involve prospective students who might have attended a segment at the current price level but would decline to do so if charges were increased. Under the example outlined here, full-time undergraduates and graduate students would be least affected, particularly if additional aid is provided. Part-time students, especially those taking fewer than six units per term, would be most adversely affected.

REVENUE EFFECTS

The revenue implications of an increase in student charges also vary among the segments as the Tables 13, 14, and 15 show. With additional financial aid reducing attrition, the gross revenues from a $150-per-year fee increase would be $19.8 million at the University, $42.7 million at the State University, and $151.6 million in the Community Colleges. Of this amount, $5.2 million would come from increased awards for eligible Cal Grant recipients in the three public segments and would constitute an expense to the State or the institutions on another part of the ledger. Similarly, the $19.4 million in additional grants or fee waivers can be counted both as a source of revenues and as a cost. An estimated $16.7 million would come from the federal government in the form of Pell Grant increases for eligible recipients. Nevertheless, the largest portion of the increase would come directly from students and their families.

These gross revenue figures for each segment do not, of course, represent the actual amount of additional revenue the segment would have at its disposal or the State would be able to use as an offset to appropriations. The added costs of funding the Cal Grant programs for eligible recipients in the three public segments and the costs of

providing additional financial aid to other students with demonstrated need would be charged against the gross revenues raised from higher fees either directly or indirectly. In the current year, the additional financial aid costs at the University were paid for by students themselves through a portion of their increased Educational Fee and the budget offsets called for by the State from fee revenues adjusted accordingly. In the State University, the process was somewhat different, but the result was much the same. The additional financial aid was provided in a separate appropriation by the Legislature, and the budget offset provided by higher student fees was computed separately.

In addition, budget penalties and adjustments occur when FTE enrollment losses exceed 2 percent of a segment's budgeted full-time equivalent enrollment. While the budget penalties are normally imposed in the current year, final adjustments are made in funding the following budget year. In the examples provided here, however, the conversion of headcount losses with additional aid to full-time equivalent losses suggests that there would be no current year budget penalties for full-equivalent enrollment losses in the University or State University. In fact, the projected enrollment losses from higher fees are so slight that they could well be made up from other sources, including potential enrollment shifts from another public segment or from independent institutions.

The situation in the Community Colleges in the event of a $150 general fee increase would be different. The headcount enrollment losses projected even with additional aid would be equivalent to a 56,940 average-daily attendance (ADA) loss in enrollment. This would exceed currently budgeted full-time equivalent enrollment by more than 2 percent, but actual enrollment exceeded budgeted enrollment by more than 26,000 ADA in 1981-82 and is expected to exceed it again in 1982-83. If it does, and if a general fee were imposed, a significant portion of the projected full-time equivalent loss from the fee would be offset by currently unfunded enrollment and some of the remainder could be offset from other sources such as the large number of potential students currently turned away from closed course sections in many districts because funding limitations do not permit additional sections to be offered to meet existing demand. As a result, these colleges as a whole might well escape a current year budget penalty for full-time equivalent enrollment losses, although some adjustment might be made the following year.

CONCLUSION

The example provided in this chapter was designed to illustrate some of the general relationships among students in the different segments

and their responsiveness to increased fees. As such it was offered to clarify some of the key issues in such an analysis and to illustrate the capabilities of the Commission's student charges model in analyzing the effects of increased student charges on enrollment, financial aid needs, and revenues in California.

Obviously the enrollment and revenue effects of many other possible fee options could be illustrated here. Different across-the-board increases could be used, either with or without a fee differential for part-time students taking less than six units. Projections using differing percentages of the cost of instruction or using different methods of computing costs could be provided. So too could simulations based on fee increases which incorporate fee differentials between or among undergraduate and graduate students or undergraduate, graduate, and professional students.

The important point is that Version 4 of the student charges model can be used to evaluate the enrollment, student financial aid, and revenue implications of almost any proposal to alter student charges in the public segments. Indeed, it has been used and will continue to be used by Commission staff and others for this purpose.

CHAPTER SEVEN

SUMMARY

Since the passage of Proposition 13 in June 1978, presures have mounted to charge new or higher fees in public higher education in California.

For the 1978-79 academic year, legislative and educational leaders agreed not to raise student charges because the existing State surplus could be used to cover both General Fund deficits and to "bail out" local schools and governments. Fees were not increased the following year either, but by 1980-81 the remaining portion of the State surplus was consumed. That year, fees at the University of California increased by 6 percent, and those at the State University rose by just under 5 percent. In both instances, these increases represented normal adjustments in fees, not a shift in the level of State support versus student support. Moreover, the fees increased at less than the rate of inflation.

By the 1981-82 budget year, decisions affecting postsecondary education were much more difficult. Not only was the surplus gone but income tax indexing and other post-Proposition 13 tax-cutting measures seriously eroded the State's capacity to raise revenue, and the economy entered a recession which reduced State revenues well below anticipated levels. To help offset a $10.5 million reduction in State General Fund appropriations, the University raised fees by more than 25 percent. Then the Governor imposed a 2 percent reduction on State expenditures, and a $25 one-time surcharge was added to University student charges for the spring quarter to help offset the cut. In the State University, 1981-82 student fees increased initially by 23 percent, and a one-time $46 surcharge was added in the spring semester to cover its 2 percent budget year reduction. This made its overall fee increase for the year 44 percent above 1980-81 levels.

In the 1982-83 budget process, the revenue problems facing the State became even more serious. The Legislature called upon the Commission in Assembly Concurrent Resolution 81 to study "the impact of student charges on access to public postsecondary education" and to recommend State policy to the Governor and Legislature by May 1, 1982. The Commission's adopted its respone to this charge, Student Charges, Student Financial Aid, and Access to Postsecondary Education, in April 1982 with ten major recommendations. Subsequent Legislative action on fees led to increases which fell within the Commission's guidelines, and the higher charges were coupled with the provision of additional financial aid. At the University, fees increased from an average of $997 in 1981-82 for undergraduates to $1,194 in 1982-83, with graduate and professional student charges slightly higher in

both years. At the State University, Legislative action required a fee increase of at least $100 per year that, when coupled with other fee adjustments led to an overall increase for most students from $316 the previous year to $441.

The passage of Proposition 13 and other serious budget pressures did not end the tradition of no tuition and no general fees in the California Community Colleges. Growth in Community College enrollment has continued, often at levels that exceeded both projections and funding; and State expenditures for Community Colleges have continued to increase. Unlike the University and the State University, the Community Colleges were exempted from the 2 percent budget cut in 1981-82, and their students have for the most part had none of the growing costs of education shifted from General Fund to fee support. The Legislature did, however, impose a $30 million funding cut for Community College avocational and recreational courses for 1982-83 and requested the Board of the Governors of the Community Colleges to prepare a contingency plan for instituting a general fee if the State's budget problems continue.

As California's educators and public policy makers prepare for the difficult task of helping shape a balanced State budget that will preserve access to quality higher education in a time of diminished resources, the issue of increased student charges and adequate financial aid will continue to loom large. In the immediate aftermath of Proposition 13, the director of the Postsecondary Education Commission argued that "increased student charges must be considered as one of several possible sources of additional funding for the long-range financing of postsecondary education," but he urged that before taking any action, "the impact on access and the intersegmental consequences of such changes should be studied carefully" (Callan, 1978). The original 1980 version of this report was an outgrowth of this concern. The continuing evolution of the Commission's student charges model, the refinement of the model's financial aid components, and ongoing staff research on the impact of various types and levels of student charges on students, postsecondary programs, and institutions are also part of the Commission's commitment to examine and provide policy advice on these issues. This report, like its predecessor, has sought to provide a thorough and balanced analysis of the complex and controversial issue of increasing student charges. It does not constitute a policy recommendation on fees or financial aid, nor does it attempt to prejudge the policy debates which are currently occurring in California. The Commission will develop and offer its actual recommendations on these issues through a separate process.

EFFECTS OF INCREASED STUDENT CHARGES ON ENROLLMENT

The primary focus of this report has been the impact of increased student charges on undergraduate enrollments, financial aid needs,

and segmental revenues. The rates of participation in postsecondary education in California are among the highest in the nation, and student charges in the State's public institutions vary widely but are still among the lowest. As the projections in this report show, any appreciable increase in student charges that is unaccompanied by additional financial aid would reduce enrollment somewhat in the University and State University and reduce it even more in the Community Colleges. In general, the greater the increase in student charges, the greater the decrease in enrollment; but current fee levels, enrollment patterns, student ability, family income, eligibility, and attendance patterns also play important roles. When fee increases are coupled with additional financial aid for students with demonstrated need, however, enrollment losses can be reduced substantially. With added aid resources, the University would be least adversely affected when fees increase and the State University only slightly more so, with the Community Colleges losing the largest number of students.

While any increase in student charges would reduce enrollments somewhat, only substantial increases unaccompanied by additional financial aid would significantly alter the composition of undergraduates and graduates attending public higher education. The projections show that current student financial aid programs at the State and federal level help to offset the negative impact of higher fees, but unless augmented with additional targeted grants or waivers they would be insufficient by themselves to prevent attrition, particularly among students from low-income families.

Furthermore, many low- and middle-income students who would remain even if no additional aid were provided would likely experience delays in completing their degree programs. This is because many of these students and their families already make major contributions toward meeting their educational costs, and rising costs could force such students to secure term-time work, increase the number of hours worked, or decrease the number of units taken per term.

Enrollment Shifts Among Public Institutions

The full magnitude of the enrollment dislocations and would accompany increased student charges could in fact be greater than the model suggests. With an across-the-board increase in fees, enrollment shifts among the public segments are likely to be minimal. With widely different fee increases among sgements, however enrollment shifts among segments are likely as well as enrollment losses within each segment. Since such shifts are extermely difficult to measure directly, most national studies have either sidestepped the issue by positing across-the-board changes in fee levels or have confined their analysis of enrollment shifts to the degree of substitution between the public and independent sectors. Because the Commission's model attempts to predict changes in student demand for higher educa-

tion produced by changes in the net cost, the enrollment losses it projects are only the changes in each segment which would result from a particular increase in its student charges independent of simultaneous changes occurring in the other segments.

Within the public sector, the State University's enrollment is probably more subject to shifts than that of the University or the Community Colleges. According to a 1979 study by the University of California, Beyond High School Graduation: Who Goes to College?, approximately 25 percent of the University-eligible high school graduates in the class of 1975 attended the State University. Program, location, and cost were the most frequently cited reasons for their choice. Location overlaps with cost by permitting students to commute to school from home and thereby reduce costs. Price changes would not eliminate such savings. Nor would they likely change the decisions of those University-eligible students who chose a particular State University campus because of its program. Nevertheless, any option that greatly reduced the student charge differential between the University and State University might prompt some of the University eligibles currently enrolled in the State University to attend the University instead. The same reasoning suggests that continued increases in the student-fee gap between these two segments of the magnitude of those over the past several years could prompt additional University-eligible students to enroll in a State University campus. Definitive evidence is not yet available, but the data will be examined closely in the months ahead.

At the same time, approximately 48 percent of the State University-eligible graduates in the high school class of 1975 enrolled first in a Community College. Although Community College charges could be instituted and then increase in the future, the cost would still be lower than in the State University or any other postsecondary option. Thus, any major increase in student charges at the State University would be likely to reinforce the current tendency for large numbers of State-University-eligible students to attend Community Colleges for their lower division work. Higher charges could also reduce the potential pool of Community College transfers to the State University. It seems unlikely, however, that enrollment shifts in the opposite direction--involving students choosing more expensive options in the face of rising fees in their own segment--would be sufficient to offset the trend, particularly among lower division students to select less expensive options. This explains, in part, why State University students appear to be quite price responsive. The effectiveness of additional aid in particular at the State University in sharply reducing projected attrition confirms the conclusion advanced in a report by the American Association of State Colleges and Universities (Stampen, 1980) that state college enrollments "are acutely sensitive to the ability of students to pay the cost of college attendance.".

Enrollment Shifts Between Public and Independent Institutions

Few estimates exist about the degree of substitution, or the magnitude of enrollment shifts, between the public and independent sectors of higher education. The most widely accepted figure is that one-half of the additional students who would enroll in public higher education if charges there were reduced would have otherwise enrolled in independent institutions. If the situation were reversed, however, the opposite would not necessarily be true. Indeed, while some students currently enrolled in public higher education might choose to enroll in independent institutions if charges were increased dramatically in the public sector, the number who might shift would probably be quite small.

Because of the substantial cost differences between public and independent colleges and universities in California and general fee increases in both sectors, any enrollment shifts between the two sectors are likely to be from independent to public institutions rather the reverse. Two types of students are most likley to be involved in such shifts despite rising fees at public institutions:

- The first would be those from high-income families. These are generally students who do not qualify for aid even at the most expensive independent colleges and universities, but who are still somewhat sensitive to price. In this regard, tuition and required fees in recent years have been increasing in absolute, if not relative, terms much more rapidly at independent institutions than at California public institutions and faster than the rate of inflation. Moreover, recent restrictions of eligibility for low-interest guaranteed student loans have made financing an education more expensive for those with annual incomes above $30,000 who must now demonstrate financial need before becoming eligible for such loans.

- The second would be students from families with low enough incomes to quality for financial aid, in particular those once eligible for Pell Grants under the provisions of the Middle Income Student Assistance Act (MISAA). Both federal campus-based aid programs and the Pell Grant program have been cut in the last several years. Many middle-income students who became eligible for Pell grants with the passage of the MISAA in 1978 have lost eligiblity in recent years because of federal administrative changes and other program reductions. Others who have managed to retain Pell eligibility do not have grants which increase with increases in tuition and fees, and a similar situation exists for low-income students who already receive a maximum Pell grant. As a result, many low-income and middle-income financial aid recipients who once counted heavily on federal grant and loan aid to help them

finance their education have become more hardpressed to meet rising educational costs, particularly at the more expensive independent institutions were work and loan aid were already a large part of most aid packages. In the past, some national studies such as McPherson (1978) suggested that it was actually less expensive for students from families earning less than $19,000 per year to attend an expensive independent institution than a much less expensive public college or university. Recent developments, however, have probably changed that pattern.

Staff Reductions

To the extent that undergraduate or graduate enrollment losses accompanied large increases in student charges in the public sector, they would exacerbate another emerging problem. Because of the drop in the birth rate nearly two decades ago, the 18- to 24-year-old age group, which traditionally has comprised the largest portion of the undergraduate student body, is declining. Department of Finance projections indicate that enrollments in the public four-year segments are likely to decline slightly over the next decade and then begin to increase slowly toward the end of this century. On the other hand, The Department of Finance projects slow but continuous growth in Community Colleges enrollments for the next two decades. While some of the University and State University campuses are currently in an enrollment-management rather than an enrollment-demand mode with more eligible students applying than there are spaces available, a few campuses in each segment are operating below their full capacity. Enrollment losses stemming from higher student charges could further compound the possible layoffs and dislocations some public institutions already face because of unfavorable demographic trends.

Shifts in Graduate and Professional School Enrollments

Master's Students: Along with their responsibility to provide high quality undergraduate instruction, the University and State University both provide graduate instruction through the master's degree level. Since master's degree students at the State University are charged the same amount as undergraduates and those in the University are charged a nominal $20 per quarter more than undergraduates, both groups would obviously be affected directly by any increase in undergraduate charges. As the projections in Chapter Six show, the enrollment of master's degree students would drop slightly with increases in student charges. Although the drop would not be as great as that among undergraduates it might be substantial if the fee increases did not include a differential for students enrolled for less than six units per term. In the State university, for example, simulations of fee increases without such a fee differential project a particularly adverse impact on enrollment because more than one-third of masters students in this segment are enrolled for a single course per term

and more than half take two courses per term. Moreover, the amount of financial aid currently available for master's degree students in both segments is limited, and the failure to provide additional aid if fees were increased would affect the ethnic composition and income and ability levels of master's students, even if the overall number of such students declined only slightly.

Doctoral Students: The University has the primary responsibility in California public higher education for educating and training doctoral and advanced professional students. Little is know presently about the likely response of such students to higher charges, but a study done on the price responsiveness of doctoral students at the University of Minnesota (Hoenack and Weiler, 1975) suggests that the enrollment impact of higher fees would be quite small. Given existing fellowships and research assistantships, and the surplus of qualified applicants to spaces available in a number of fields, modest increases in student charges for doctoral students are not expected to decrease enrollments or diminish the quality of students.

The price responsiveness of doctoral students at the University of California is assumed to be similar to the Minnesota experience. Nevertheless, 46 percent of the University's graduate students currently receive need-based or ability-based grant aid. In addition to these students a large number of University graduate students also receive California Graduate Fellowships, federal fellowships, research assistantships, and teaching assistantships. In other words, a much greater percentage of the University's graduate students than its undergraduates receive financial aid in order to help meet the costs of their educations. Those receiving aid are quite price responsive, and although a drop in their enrollment would probably be offset, for the most part, by others who wished to attend, the composition of the graduate student population would invariably change. The additional aid costs for graduate students when fees increase at the University would be relatively high in order to insure that no fewer low-income or high-ability students were unable to attend because of inadequate personal resources.

Professional School Students: The available evidence suggests that moderately higher student charges for advanced professional students, particularly those in medical, dental, and law school, would not produce significant changes in the number or quality of students who would enroll, since many highly qualified applicants in the large surplus pool of candidates would not be dissuaded by the increases either because of greater personal financial resources or the high salaries that many graduates can command. Nevertheless, while the overall number and quality of students would probably not change, their ethnic and income composition might be altered. Furthermore, the existing evidence, though certainly not definitive, indicates that students in these three professional fields can count on less parental support than undergraduates and cannot count on teaching and research assistanships, part-time employment, or significant grant

aid like most other graduate students. Thus, these advanced professional students are extermely dependent upon loans to finance their educations. Data are now being collected to determine the magnitude of indebtedness among such students in California. Nationally, however, the average indebtedness of medical students by their fourth year was recently $31,000 at private institutions and $21,000 in public institutions, and was $10,400 for third-year law-school students in public institutions (Flamer, Horck, and Davis, 1982). Though such figures indicate that these students are quite willing to borrow to complete their education, little research currently exists examining the impact of such debt levels on their subsequent choices of speciality and career pattern.

EFFECTS OF INCREASED STUDENT CHARGES ON REVENUES

The gross revenue increases that would be produced by higher student charges vary from segment to segment depending on the magnitude and structure of the increased fee. Generally, the greater the increase in student charges, the greater the increase in gross revenue produced.

As noted earlier, however, gross revenues are not an accurate measure of the amount of additional revenue a segment would receive or the State could count on as a budget offset if student charges were increased. Because enrollment losses and additional aid needs also vary directly with the amount of any increase in charges, financial aid costs would increase as charges increased and so would potential enrollment related budget reductions. Of course, the latter item would be counted as a revenue loss by the segments and as an additional offset or savings by the State. In either case, the net revenues raised by increased charges was substantial.

Increased student charges would result in additional federal Pell Grant funds coming to California undergraduates. This increase, however, would not be as substantial as it would have been several years ago before the Middle Income Student Assistance Act was in effect dismantled by subsequent program reductions. The strategy used by a number of states over the past several years to "capture" additional federal aid dollars by raising student charges at public institutions is no longer viable. Pell Grant eligibility is being reduced in the face of rising student charges, and the grants of most of the remaining eligible students are often not price responsive. In fact, most states are now finding that they must provide a larger amount of financial assistance themselves if they want to maintain access to public institutions in the face of rising student charges.

THE ISSUE FACING CALIFORNIA

The central issue in determining the level of student charges is what share of the cost of education should be borne by students and what share should be borne by the general taxpayer through State and local support. No simple formula will resolve this issue, and any attempt to do so that ignores its human dimensions is unsatisfactory. A more effective approach to the issue is to determine the current balance between student support and State and local support and to assess the consequences for students, institutions of higher education, and the State of shifting that balance.

For more than a century, California has maintained a tradition of providing "tuition-free, low-cost" public higher education. Nevertheless, the University and State University have raised their student charges considerably in the past decade, most notably in the early 1970s and in the past two years. The Community Colleges have increased or charged selected users' fees in the past few years, but still charge no general student fees for services or instruction.

As this report makes clear, student charges are inextricably linked to enrollments, financial aid needs, and segmental and State revenues. Student charges in California's public institutions are currently among the lowest in the nation and its rates of participation in public higher education among the highest. The Commission's simulation model and the research evidence on which it is based show that increased student charges would produce greater revenues but lower enrollments and that existing student aid programs would reduce some of the resulting enrollment losses, but could not eliminate them. At the same time, the projections of the student charges model suggest that moderate increases in student charges and additional financial aid can be linked in such a way as to offset much of the enrollment loss among full- and part-time degree-oriented students at both undergraduate and graduate levels. Nevertheless, the trade off between increased fee revenues to maintain institutional funding and quality instruction on the one hand and the threat of diminished educational opportunities as a result of lower enrollments on the other creates a profound and painful dilemma for public policy makers. The resolution of this dilemma should be based on a clear understanding of the goals the State hopes to achieve through its system of public higher education and a recognition of the central purposes these institutions are intended to serve.

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